

# ITEMS OF INTEREST.

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## *Shots from the Profession.*

### THE PREVENTION OF DENTAL CARIES.

DR. HENRY SEWILL, ENGLAND.

[Read at the Annual Meeting of the British Dental Association.]

Etiology being based mainly on anatomy, physiology and pathology, there can be no true science of preventive medicine without complete knowledge of disease ; but even without a truly scientific system of preventive medicine—and preventive medicine is only now slowly being placed on a solid foundation of scientific fact—the art of preventing disease is capable empirically of vast development, and in this manner has already achieved great results. Let me illustrate: Through our knowledge of the processes of fermentation and putrefaction, and of the action of micro-organisms, we are beginning slowly to demonstrate the etiology of zymotic diseases, the proper means of prevention which have long been proved and recognized. Of the actual causes of typhus, typhoid, diphtheria, small-pox, cholera, and such diseases we know very little ; yet we possess in the art of sanitation the means of preventing them. Sanitary art has so far advanced it may be truly said these diseases ought no longer to exist in civilized states ; when nations shall have the resolution and the power to put their sanitary institutions on a level with science, these scourges of humanity will be as obsolete as the plague. Similar remarks apply to syphilis.

When we turn to other classes of diseases we find that for them no prophylaxis exists because of our almost complete ignorance of their etiology. This remark applies to many surgical diseases, and specially to every class of new growths—every species of innocent and malignant tumor. Common and fatal as the latter are, it is quite beyond our power to prevent them. It is known that in individuals predisposed by heredity or other circumstance, an injury such as a blow on the breast or the irritation of pipe smoking on the lip, may

apparently determine an outbreak of malignant growth; but when this is said, the extent of our knowledge is reached.

These considerations may be applied to dental caries. The true character of dental caries has been only within late years demonstrated; we have had to wait for light to be shed on the anatomical, physiological and pathological questions involved; and this light has only recently illuminated what was previously dark in these subjects. Nevertheless, the importance of personal hygiene, local and general, has been long recognized as preventive of dental decay. The nature of this affection is understood and the time come when we may profitably discuss the subject of dental preventive medicine from the standpoint of knowledge. The object of my paper is to start such a discussion.

Caries is a process of disintegration, commencing invariably at the surface, proceeding inward, and due entirely to external agents; enamel and dentine are perfectly passive under this process, and manifest neither pathological action nor vital reaction of any kind.\*

The predisposing causes of caries are, 1st, innate structural defects in the teeth, which render them more susceptible to the action of agents; 2d, all such diseases as are accompanied by vitiation of the oral secretions, or which tend to the formation or deposit of acid, and the accumulation of products of decomposition within the mouth; and 3d, crowding and irregularity of the teeth resulting from smallness and malformation of the maxillæ. The direct agents in initiating caries are acids—principally malic, butyric and acetic—the products of chemical change and fermentation set up in fragments of organic matter (food, mucus, and epithelial scales) which are commonly present in the mouth and lodged about the teeth. These acids are often assisted in their action by acid mucus secreted by unhealthy gums, acid (instead of alkaline) saliva in some diseases, and acid eructated from the stomach in others.

To discuss my present subject intelligently, it is necessary to state at the outset the fundamental facts on which reliance is placed; and though it is not essential now to enter into the subject of the development and structure of all the dental tissues, it is desirable that I mention some facts specially with regard to enamel. Enamel is the starting place of caries, and with this tissue we are mainly concerned in studying the etiology of the disease. Enamel is a densely hard, almost homogeneous calcareous mass, containing not more than from one to five per cent. of organic matter. Examined microscopically enamel is seen to consist of solid prisms lying side by side, intimately united and without any intermediate substance. Enamel is superimposed as a cap on the subjacent dentine to which it is closely united.

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\* Pretty extreme language.—ED. ITEMS.

The enamel organ—that portion of a developing tooth from which enamel is formed—consists of epithelial cells, and it retains its epithelial nature throughout the process of calcification, the process commencing at the surface of the dentine, in which previously the hardening process has already well advanced, and proceeding outward. The completed tissue results from direct calcification of the internal layer of cells. Numerous vascular papillæ, rising from the contiguous tissue of the dental sac, penetrate to a slight depth the external layer of cells and convey nutriment to the developing tissue. On completion of the enamel these external cells, with the vascular loops, undergo atrophy and disappear.

In estimating the possibility of pathological phenomena in enamel we must not lose sight of the anatomical characters of dentine, the tissue which intervenes between enamel and the nearest vascular supply, and through which any influences rising from within the tooth must find their way to affect enamel.

Dentine consists of a homogeneous calcareous mattix with a basis of fibrous tissue, about 28 per cent. of the mass. It is permeated by minute tubes, not more than  $\frac{1}{4500}$  inch in diameter, which, radiating from the pulp cavity, are occupied by fibrils endowing the tissue with sensibility. The minuteness of the fibrils prevents actual demonstration of their structure, but it is sufficiently proved that they are protoplasmic and form the sole protoplasmic element in dentine.

The bearing of these anatomical and physiological considerations on my subject depends on the fact that enamel is devoid of any physiological mechanism whereby either vital or pathological changes could be brought about in it, and that whatever changes enamel undergoes, they are induced by external agencies. Not only is enamel not capable of intrinsic changes, but it is not in relation with any mechanism capable of influencing it from within. To believe in the possibility of nutritive changes in enamel we must first conceive some means by which this calcareous mass, devoid of cellular elements and incapable of imbibition, could assimilate nutritive material when conveyed to it; and we must imagine the conveyance of new and effete material to and from the vessels of the pulp through the odontoblast layer of the pulp by way of the dentinal fibrils to its destination within the substance of the enamel.

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*A man desired a surgical operation*, which was refused by the surgeon. The patient went away, but afterward returned stating that another physician had consented to perform the operation and unless he, No. 1, would operate he should go back to surgeon No. 2. The operation was performed, and the surgeon was afterward sued for ten thousand dollars damages, a portion of which was collected.—BROPHY.

## DENTISTRY IN GERMANY.

DR. JAMES TRUMAN, PHILADELPHIA, PA.

Theoretical education in Germany is, in most respects, equal, and in some directions, superior, to that in this country, but dental practice is immeasurably inferior; so bad, indeed, that I doubt whether at any time in the past fifty years, it has been so defective here. I allude now to the mass of practitioners. There are a few earnest and able men who are exerting every means in their power to elevate the profession; but, so far, their efforts have not availed much, and, I fear, are not likely to give better results, unless a higher standard of remuneration can be established, which, in the present condition of things, appears hopeless. The low fee bill destroys ambition to do superior work, and degrades the work itself. Germany is truly a poor country, and it will probably remain impossible for the masses to pay prices warranting the necessary outlay of time and skill found requisite in this country. The operations in gold that are daily performed here would there be simply impossible. While this is true, it does not excuse the miserable work everywhere found. The German mind runs naturally to specialties. The idea enters into their educational life; the boy is fixed for his future at a very early age, and his education is arranged to meet this future. Very little, if any, attention is bestowed on the natural inclinations of the boy, it seemingly being supposed that the training he will receive will take the place of natural talent. The result is, as might be anticipated, the majority get into places unsuited to them. In anticipation of the work of life, the boy is sent to that school best adapted for his future needs. The doctor, lawyer and clergyman go to the gymnasium. Those intended for practical pursuits, such as civil engineer, etc., to the Real Schule, and the common people to the Bürger Schule. The first is purely classical, the second omits the classics, excepting Latin, devoting more time to modern languages and mathematics, and the latter gives only a plain education. The education proper, as we understand it, ends in each of the institutions, and the University receives the professional man, the polytechnic, the practical civil engineer, etc., to prepare for the business of life; and in many cases the individual is not prepared to begin this life till thirty years of age. To the time spent in study must be included that in the army. That this large amount of time devoted in a degree to theoretical subjects has an injurious effect in the acquisition of practical ability, must be self-evident. So much of our professional labor is purely mechanical, that manual dexterity must be acquired young.

There are two classes of dentists in Germany—the mechanical (*zahntechniker*) and the dentist (*zahnarzt*). The first has never passed

the government examination, and cannot perform any operation regarded as surgical. He can make artificial work and insert fillings, but he must never call himself *zahnarzt* without incurring the penalty of an outraged law. The *zahnarzt* proper is supposed to be a very learned man, and capable of performing all that pertains to the profession, but, in my observation, he never hesitates to make a plate over roots, nor does he, as a rule, regard the filling of these roots as a matter that concerns him in the slightest degree. He deals largely in amalgams and phosphate of zinc, and a great improvement might be made in the insertion of these. He is remarkably jealous of his professional colleagues, and, if it be an American dentist, does not hesitate to ask the aid of the chief of police to drive him from his neighborhood; in a word, there seems to be but a moderate degree of that *esprit de corps* so prevalent with us. They have a national society, and several local organizations, but they have, so far, failed to break up that self-isolation and intense jealousy which makes progress impossible. There is an effort made to establish dental schools, but as these, to be of any value, must be connected with the universities and under government control, it is not probable they will soon be an accomplished fact. An innovation on established custom like this will require at least a generation before it can be acted on. There exist some feeble attempts at teaching, but they have never risen to the dignity of schools.

Mechanical dentistry in Germany is about up to the average, as far as skill in manufacture is concerned. The constant insertion of plates over roots, with all its disgusting results, necessitates the use of springs, and nothing so much strikes the American observer as the materials in the dental depots for this antiquated mechanism.

The literature of the profession there is, on the whole, very good. It is to the credit of the dental mind in Germany that it does not wrap itself in a national self-conceit, but fully acknowledges the claims of other nationalities. Some valuable, original works have been published, and the journals vie with each other in giving their readers the best thoughts at home and abroad. The *Deutsche Vierteljahrschrift fuer Zahnheilkunde* has always been ably edited, and sustains its deservedly high reputation under the care of its present editor's pen, Dr. Baume. The *Correspondence Blatt* is made up entirely of translations, the larger portion of which are from the journals of this country. The *Zahntechnische Reform* is the organ of the mechanical dentists, and is specially noticeable for the acidity of its editorials, when dealing with American colleges. The *Monatschrift fuer Zahnpflege* and *Zahntechnik* endeavor to combine, to a limited extent, all branches of the healing art.

The materials used in dentistry continue to be mainly manufactured in this country and England, though instruments are made there

to a considerable extent, but they do not compare with those made in the United States. The manufacture of gold foil has been commenced by a firm in Bremen, and from a limited experience with it I regard it quite equal to that made in this country.

Dentistry, as practiced by Americans, and by some educated there, stands on a different footing from ordinary German practice. Its aim and results are higher. The American operator is cut off, however, from nearly all association of a professional character with his German co-laborer. Having little in common, they cannot pull together, and, as far as my observation extends, do not attempt it. I regard the standard of American dentistry abroad quite up to, if not above, the average of that at home. Though entirely isolated, except in the very large cities, the ambition to excel is maintained by a constant interchange of patients. The American traveler looks up his dentist about as regularly as he does his hostelry in each new city visited. The result is a constant supervision over each other's work. This takes the place, in a large degree, of more intimate intercourse, and possibly reaches as good or even better results. They have their own separate organization.—[Trans. Odontological Society.]

#### MERCURIAL PTYALISM.—CASE IN PRACTICE.

W. S. ELLIOTT, M.D., D.D.S.

A. B., male, aged 20, occupation journeyman wool-hatter, presented himself January 15th, 1885, complaining of sore mouth.

Examination revealed extensive lesion of the tongue and mucous membrane generally. There was an intolerable fetor, and pus was mingled with the sputa. Pulse 90, temperature  $100\frac{1}{2}$ , appetite poor. Could not examine fauces, owing to œdema of the tongue and difficulty of opening the mouth. There was no history of specific disease, and no admission of having been treated for such. Ordered *listerine*, one part to three of water, as a wash. Patient to return in two days.

17th. Temperature and pulse nearly normal; fetor intolerable; could open the mouth wider; found pus exuding from sockets of teeth and dorsum of tongue; fauces inflamed; fungoid patches on right anterior pillar, buccinator and internal aspect of lips; teeth loosed and protruded.

Disease began to attract attention in July of 1884. Touched the patches with a saturated solution of salicylic acid in alcohol; wash to be continued.

19th. Fetor somewhat reduced; found more fungoid patches, which were treated as before. Applied a one-to-one solution of *listerine* to the sockets of the teeth, using for the purpose an artist's bristle brush. By forcing the bristles, wet with the solution, along the necks of the teeth the gums are depleted and the medicament

exerts its influence just at the right time and place. Though we have had no satisfactory history of the disease, we pronounce our diagnosis as *mercurial pytalism*. Subsequent investigation confirms this, as we learn that a preparation of mercury is used in the manufacture of wool hats, and that the operatives in the shops are frequent victims of mercurial poisoning.

23d. Mouth looking much better in every respect; appetite improving; patches cleaning up. There are deep fissures on the dorsum of the tongue, but no pus.

The necks of the teeth are now treated with a one-to-four solution of aromatic sulphuric acid, and the following wash directed:

R.—Potass. chlor .....	℥ ij
Tr. krameria.....	j
Aquæ cologne.....	ss
Aquæ pura.....	℥ ij ss

M.—Sig.—A dessertspoonful in a wine-glass of water. Rinse the mouth several times a day.

February 1st. Still some fetor present; mucous membrane looking more healthy, except on the lower lip. Inferior incisors very loose and will eventually be lost, as well also as the superior, right first molar. The remaining teeth are firmer and doubtless will prove useful for many years.

Acid treatment renewed; wash to be continued.

February 8th. Tongue entirely healed; teeth firmer, but more or less protruded. Inferior incisors very loose and almost freed from their attachments. For appearance sake they are retained by platina wire ligatures and are thus made comparatively comfortable.

February 12th. Patient discharged with the injunction to be diligent in the hygiene of the mouth and to use occasionally a wash of alum—℥ ss to a goblet of water.

### DO YOUR BEST.

W. A. JOHNSON, M. D., PEORIA, ILL.

In doing our best for a patient, we may become involved in a long and difficult operation, or one which is in itself distasteful, or may even meet pecuniary loss, yet if it is a *duty*; that is reason enough for its performance.

Let me emphasize this strongly. We are often tempted to extract a tooth which looks forbidding and is difficult of access; yet if this tooth is removed, its antagonist will become useless, the cheek will fall in noticeably and so much masticating surface will be lost. All this, because we are too lazy to do our best for the patient.

In these cases the patient's knowledge is limited, he would gladly be enlightened, and would appreciate our endeavors to serve and instruct him.

As a rule patients place but little value on the posterior teeth.

It is our duty to save them and explain that health depends largely on their condition.

It has been urged against the German universities, that the professors look on their hospital patients, simply as so many diseased specimens on which to study pathology, and that so long as their favorite study is supplied with material, they care very little for the welfare of the unfortunates.

This is true, unhappily, of many dentists, with the wording slightly changed. How many there are whose first, last and only aim is to make money !

Every patient who comes to them is regarded simply as the owner of a purse ; the operations performed, and the instructions given, are all tinged with this idea.

This is not right, and we should not only oppose this wrong in others, but also be careful that we ourselves are free from blame.

A case will illustrate: A coarse-looking German woman applied to a dentist to have a "toodt oudt." The tooth was a valuable one, and instead of extracting it, the dentist spent half an hour, and his entire stock of German, in explaining the operation of removing the pulp and filling the tooth. The woman had no idea that such things were possible, and the result was, that instead of receiving fifty cents for extracting, the bill for putting her mouth in good order amounted to over sixty dollars, which was cheerfully paid. Not only so, but her attention having been directed to this subject, she sent her twelve children to the dentist, and, since that time, has contributed largely to the support of the man who refused to extract a useful tooth.

Our duties to the community in which we live, are such as belong to mankind in general, with this added, that because of our title, we are looked up to in social, moral and hygienic matters. Let us be careful to sustain our reputations, by being clean, morally and physically, and let us carefully fulfill every trust committed to us.

Let us be kind, sympathetic, courteous, gentlemanly, honest, with a "conscience void of offence toward God and toward man." Then, if we have not performed our whole duty, we have done our best—"Angels could do no more."

"What shall I do, lest life in silence pass?"

"Thy duty ever.—And if you do,

And never tempt the bray of noisy brass,

What need'st thou rue?

Remember, aye the ocean deeps are mute,

The shallows roar,

Worth is the ocean—fame is but its bruit

Along the shore."

—*Ohio State Journal.*

## LOBELIA AS A RELAXENT IN RIGIDITY UNDER ANÆSTHETICS.

DR. J. W. SCARBOROUGH, LAMBERTVILLE, N. J.

The patient, a maiden lady, of about twenty-five summers, called at my office and requested me to administer ether, and extract her upper and part of her lower teeth. Our persuasions against the use of ether failing, we proceeded to administer it. The first two or three inhalations caused spasmodic breathing, which subsided after a few inhalations of pure air, when we continued with the ether till complete anæsthesia was produced, when the upper teeth were all removed. Consciousness and sense of pain then returning, we advised her to wait a week to recruit, before having the lower teeth removed. This was done because we did not like the disturbed respiration in the beginning of the operation. We accepted it as a warning to be cautious. The patient left for home as well as is usual in such cases. In just one week she returned for the next operation. Ether was administered, and again the first two or three inhalations disturbed the breathing, as before, and again a few breaths of pure air were admitted and natural breathing was resumed. The rest of the operation was proceeded with precisely as on the former occasion. The teeth were all removed except one difficult root, which broke off in the effort, consciousness returning to disturb our operation. While thinking a few seconds whether to administer more ether and remove the root, or let it remain, our course was quickly determined on by a sudden paroxysm of breathing, the patient making quick efforts, but apparently unable to inflate the lungs at all. And this, too, while the blood was flowing from the gums, which in itself is calculated to relieve spasmodic action. Hence we regarded it as a serious indication, and hastened to our trusted remedy, the third preparation of lobelia, and gave her about ten drops, or one-third of a teaspoonful, in a teaspoonful of cold water. This relieved the trouble immediately. Fearing, however, that a trying emergency might be at hand, we thought best to prepare for the worst, and dispatched a messenger for some warm water, as the proper way to prepare this medicine is to put it in twice its bulk of warm water, sweetened a little, that it may be more palatable. Our fears were fully realized. Simultaneously with the return of the messenger, came another paroxysm, more severe than the first. Then a teaspoonful was given, and the relief was instantaneous and complete for the time being, but in two minutes more the spasm was on again, and we gave a tablespoonful dose, which was no sooner swallowed than the breathing became normal. Our case was now becoming desperate. The two women attending were alarmed, and wished a physician sent for, but we assured them that the patient would either be dead or past danger before a messenger could get many rods from the door. Our purpose now was to relax the system as speedily as possible, and as thoroughly, and thereby enlarge

the caliber of the vessels, and expand the perspiratory system, that the ether might find more ready egress through those great emictories of the exterior of the body, established by nature for the elimination of ethereal, effete substances therefrom. We prepared the fourth dose of one and a half tablespoonfuls (one tablespoonful being an ordinary emetic dose). In a moment nature was again making spasmodic efforts to keep the breath of life in the lungs, and the medicine was swallowed and relief obtained. Still no nausea, and no relaxation visible. The nervous energy and vital force were so thoroughly prostrated by the ether that the medicine, thus far, seemed only to relieve the spasms, without producing the general result desired. Courage and perseverance kept pace with the requirements of the moment. We stepped behind the screen to the laboratory and shook up the lobelia bottle and poured out two tablespoonfuls, with the sediment in it, for the fifth and last dose. We barely got it ready when the attendants excitedly called us, and, hurrying to the patient, behold the scene that presented itself. There she was, reclining in the arms of her attendants, with the head thrown back, the leaders contracting; the arms raised, and fingers partly closed by contraction of the leaders, and becoming purple; the face and lips also presenting that purple tint; the breathing scarcely perceptible. My first thought was, she cannot swallow; but knowing the almost electrical power of this agent, we poured a little in the mouth between the cheek and tongue, and when it reached the glands and came in contact with the sub-maxillary and sub-lingual plexus of nerves, it soon relaxed the spasmodic condition—a condition of rigidity almost amounting to that of tetanus—stimulated the action of deglutition and passed on. Then the whole dose was given, and the relief again complete. In a moment she vomited a very little, and then desiring to lie down she was permitted to do so. So great was the exhaustion, that almost the very moment her head touched the pillow she was sound asleep. We watched her closely. The respiration was normal, and continued so. In from three to five minutes the systemic effect of the medicine was discernible. There was that peculiar pallor of the lips, and slight tremor about the mouth indicating nausea, and in two or three minutes more she roused up, sick enough; thoroughly relaxed, and vomited freely. This ended the trouble; she returned home in about an hour from that time, and had no further recurrence of unpleasant symptoms.

I have been particular in describing this case, because it seems to me it might justly be called one of the fatal cases from anæsthesia, *rescued*, when within a *single minute* of the grasp of death, by the magic power of this searching remedy. I firmly believe that nine-tenths of the fatal cases might be saved by the prompt and judicious use of this compound preparation of lobelia. I could not feel that I

was doing justice to my patients, or exercising proper precaution in their behalf, if I administered an anæsthetic without having this at hand, though I never had but two other cases, in all my twenty-two years of practice, that required more than doses of five to fifteen drops as an arterial stimulant. By using it, no risk of injury to the patient is incurred. It is perfectly harmless, though powerful as a remedy; operating simply by stimulating the sluggish functions of the body to renewed activity. I should add, in connection with this case, that during the period of relaxation scarcely any blood was flowing from the gums, showing that it does not increase hemorrhage, but on the contrary, the elasticity it produces, specially in the coats of the arteries, facilitates the exudation of that plastic lymph which closes the extremity of the ruptured vessels. In these cases where the hemorrhagic tendency is so great that the blood not only flows from the vessels ruptured by extracting teeth, but oozes out through the membrane of the palatine arch and gums, I have no doubt that placing such patients under the influence of this agent would speedily arrest that kind of capillary hemorrhage.

Now, I will briefly relate a little of the previous history of the above-described case. After the operation was through with, I was informed that the lady had a severe turn with the measles, eight months before; that they left her with a weakness of the lungs, and a dry, hacking cough; that her physician had told her not to take an anæsthetic when she had her teeth extracted, under any consideration; that if she did, it would be at the risk of her life; that the lady with whom she lived had used her utmost endeavors to dissuade her from taking it; that her family and friends had all pleaded with her in behalf of the safer course. And yet, in face of this opposition and this warning, she came to me with a determination to keep me in ignorance of these facts, in the hope that I would give her ether, reasoning in this wise: that she could not live with the teeth in her mouth, they were causing her such racking pains and sleepless nights; that she could not have them out without "taking something"; and that if she died in the operation it would be but a small loss any way. She managed to shut the mouth of the lady who brought her, and to keep from my ears the slightest hack or cough. On my inquiry as to the state of her general health, she replied: "There is nothing the matter with me, I am all right." Her pulse was full and normal, and I think no one would have made an unfavorable diagnosis of the case. Of course the lung weakness could have easily been detected by auscultation and percussion, specially by baring the chest, but that thoroughness of examination would be considered officious, unless there was a more manifest reason for it than appeared in this case, the patient looking the picture of health. The sequel you have heard. I can

never forget that fifteen minutes, the time from the commencement of the spasmodic disturbance to the final safety of the patient. It was, I assure you, the most anxious, the most trying, fifteen minutes of my professional life.

Now, there is a lesson of usefulness to be learned by this case. It is this: That we cannot rely implicitly on the representations made to us, and inferences conveyed by the strangers calling on us for professional service; that we are liable to be deceived, and led into mistakes, as I was in this case, which, had it proved fatal, would probably have driven me from the practice of dentistry; that in view of these facts, it is proper that we should be prepared at all times for the worst class of emergencies that ever occur; that we should study the merits of all modes of treatment suggested, and select that for a trial which promises the best results.

I would stop when the conditions requiring some relief ceased, certainly. With regard to the patient whose case I described, I am positive she would not have lived two minutes the last time if I had not administered the final dose. I have seen this medicine relax locked-jaw. When it was poured through the teeth muscles relaxed, the jaws open immediately.—[Trans. N. J. Dental Society.]

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*The Third Annual Commencement Exercises* of the Chicago College of Dental Surgery took place at Hershey Music Hall, Chicago, Ill., on Friday evening, March 27th, 1885, at 7.30 o'clock.

The address to the graduates was delivered by Prof. W. T. Belfield, M.D.; the valedictory by J. E. Hinkins, D.D.S.

The number of matriculates for the course of 1884—85 was sixty-two.

The degree of D.D.S. was conferred on the following members of the senior class by Dr. J. A. Swasey, President of the Board of Directors:

H. Austin Armitage, M.D., England; Harry Leon Barnum, M.D., Wisconsin; Edward Everett Cady, Illinois; Warren Cary, M.D., Illinois; Jesse Austin Dunn, Illinois; Astor Gerard Gray, Illinois; Rudolph Theodore Hasselriis, Denmark; Joseph Hickey, Dakota Territory; John Edward Hinkins, Illinois; A. Melville Hurdson, Canada; Charles Nelson Johnson, D.D.S., Ontario; William J. Johnson, M.D., Illinois; Edmund Lambert, Illinois; Asa Holt Lane, Illinois; Charles William Lewis, Illinois; Archibald Stewart McCandless, Illinois; Joseph Donahay Moody, Illinois; Amos Jedd Nichols, Illinois; Charles Putnam Pruyn, Illinois; Joseph J. Reed, Illinois; Charles Henry Wachter, Maryland; George W. Whitefield, Illinois.

The honorary degree of D. D. S. was conferred on Dr. E. B. Call, of Peoria, Illinois. TRUMAN W. BROPHY, *Secretary*.

## DENTISTRY IN FOREIGN COUNTRIES.

DR. CHARLES A. KINGSBURY, PHILADELPHIA, PA.

Some of my own impressions and experiences, while traveling through Europe and the East, some years ago, may be of interest. My visits to the native dentists, and the acquaintance I formed with them, though necessarily limited, convinced me at that time that they were, in many respects pertaining to their profession, considerably below the standard of the reputable and experienced dentists of our own country. I will mention a case in point that occurred during my visit to Beyrut, Syria. Beyrut contains a population of some six thousand, a large proportion being English, French and German. Soon after my arrival there, I was called on by a Turkish gentleman connected with the American Mission and College, who wished to consult with me in regard to his teeth. I found that he was wearing a full artificial denture of rubber, and that it caused him great trouble and suffering. It was obvious that the defects were so radical as to require an entire reconstruction of the dentures, both upper and under. Upon stating this fact to him, he desired me to make the dentures for him. I replied that I was traveling, not professionally, but for my health and pleasure; that I had no dental instruments with me, and that it would be impossible for me to serve him in that way; but if he would bring his dentist to see me, I would consult with him, making such suggestions and rendering such assistance as would enable him to make great improvements on the set he had. The next day he called on me, in company with his dentist, whom I found to be an Austrian, from Vienna—a gentleman of culture, with a medical education, but quite deficient, in some respects, as a practical dentist. He was very cordial, seemed glad to see me (having seen my name in connection with the Philadelphia Dental College) and was gratified for the advice and aid I gave him.

I made an appointment to meet the patient at his office, where I took the impression, and so directed the construction of new dentures that before I left the city the patient was in possession of dentures that he found to be a great improvement on the former. He seemed delighted, and subsequently called at my hotel to express his gratitude, and to prevail on me, if possible, to remain and practice my profession in Beyrut, engaging, if I would do so, that I should have all the business I could desire. I was obliged to decline his urgent invitation, thanking him for his appreciation of American dentistry, stating that I had a practice and professional interest in my own country that I could not be persuaded to leave. In Zurich, Switzerland, I found that a young American dentist, Dr. Senel, was building a most successful and lucrative practice. I found another American dentist at Florence, Italy. At Rome I called on Dr. Buridge, an American dentist, who

enjoyed the reputation of being a fine operator, and was patronized by the Roman nobility and foreign residents.

For many years Dr. Brewster was the representative of our profession in Paris, and was *immediately* successful. It is probably known to most of you that it was with him that Dr. T. W. Evans became associated in practice, on his going to Paris some years ago; and no doubt to this fact, in part, as well as to his professional skill and personal merit, Dr. Evans is indebted for his unprecedented success. Probably no professional man, surgeon, physician or dentist, ever received the patronage of so many crowned heads, princes, nobles and persons of distinction and great wealth, as the American dentist, Dr. Thos. W. Evans, of Paris. His fees have been fabulous, and the emoluments of his practice have been so large, that his present wealth is estimated by millions. During my visit to Paris, in 1867, Dr. Evans was very cordial, and extended to me many acts of professional courtesy and personal kindness, which I fully appreciated, and to which I take pleasure in bearing my grateful testimony at this time. Dr. Gage was another American dentist, at that time enjoying an enviable reputation and success in Paris. In consequence of bad health, he was obliged to give up his practice, which was worth some \$20,000 a year. Dr. Dubouchet, of our city, negotiated for his practice, and became his successor, retaining most of his patients. Europeans seem to possess stronger local attachments than our restless, migrating American people. The dentist who buys out the good-will and practice of a European dentist, will be very likely, in case he is competent and can be strongly recommended, to retain nearly all the patients of his predecessors. Patients do not become scattered as they do in American cities.

The time may have gone by when American dentists can find such openings for practice as were found by Brewster, Evans, Gage and some others. But thirteen years ago there were great inducements offered to American dentists to open offices for practice in various cities of Europe. And I have no doubt of there being many most desirable opportunities for them now, not only on the Continent, but even in England, inasmuch as students from all nationalities come to the dental colleges of the United States of America for their education. I think the presumption is fair, that it remains for the American dentistry to supply the needs of the world, as it regards dental practice, to a large extent.—[Trans. Odontological Society.]

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Nine-tenths of our best operators do not cut away enough in proximal cavities in molars and biscuspids in filling teeth. I recommend the use of the magnifying glass in examining and in preparing cavities.—CUSHING.

## CLIMATE, FOOD, AND ASSOCIATIONS IN FORMING RACES.

JAMES TRUMAN, D.D.S., PHILADELPHIA, PA.

The prevalent idea that teeth vary according to climate, food, etc., is probably true, and needs no argument to refute it; but to what extent this variation takes place in teeth, more than in other tissues, is not clearly indicated. In fact, it is a subject encompassed with difficulties. Dentistry is too young, and the trained workers too few, and the statistics, collected from professional sources, too meager, to arrive at any definite conclusions. It is, therefore, only possible to skim over the surface, and, perhaps, glean a few facts, leaving the results to the future for that correction which must necessarily come from more positive observation. That climatic influences have largely to do with the formation of tissue is axiomatic, and would seem to need no words to make it self-evident, but the processes through which this is effected are by no means clear. They enter into the realms of mysterious influences that operate to evolve life from the minutest atom to the fully-developed animal; from the unorganized protoplasm to the almost God-like mentality of man. Till we can define what the correlation of forces really means, till we can fathom the mysterious border-land, which no microscope has ever penetrated, we must grope in profound darkness. Here observation ends and theory begins, and yet, behind this theory, in the illimitable void, lies the true home of the forces, which aggregated, create life and life-forms wherever we find them. The most powerful forces are the intangible. We call the fall of bodies to the earth the force of gravitation. We recognize the fact that the universe is held in position by a power invisible and incomprehensible to the human intellect. The world of causation lies beyond our present reasoning powers or our most powerful objectives. We recognize certain effects, but the causes are shadowed in the realms of mysterious life.

Whether we view life in the concrete or examine it in its simplest forms, we are impressed with the fact that the laws of formation are everywhere imperiously present, and that atoms, organized or unorganized, are but the creatures of influences which, through all apparent aberrations, are resolved finally into harmonious relations. While we may formulate the law into words and say, evolution is progressive development, we are met at the beginning of our inquiry by apparent contradictions—contradictions which the few thousand years accorded us for observation have failed to clear up. The apparently unchanging color of the different races of men, and their typical forms, continuing through successive ages, have never been satisfactorily traced to climatic influences or differences in food and surroundings. The world has rested content with the explanation that the color of the negro was the result of tropical heat through countless generations,

but it is somewhat difficult to reconcile this statement with the facts of history and observation. The effect of color was supposed to be largely dependent on the degree of distance from equatorial regions. This theory is met by the equally difficult fact of the existence of light-shaded men in the interior of Africa, and from that other long and well-known fact that the coppery tinge is common to races in temperate zones. The negro appears to be a distinct type and cannot be confounded with any of the other tropical races. It may be argued, with some degree of plausibility, that if he is the result of climatic influences, then, by the same influences, other races, similarly circumstanced in regard to heat, should have been similarly formed; but they are wanting in many of the attributes of color, form, etc. The North American Indian indicates by his color his probable Asiatic origin, for there is nothing in climate to cause the tinge, else would two hundred and more years have given some evidence of change in our own race. But if change exist at all, it has been on the side of improvement, and the American of to-day—in the North, has less color than the races from which he sprang. Yet, the negro of the present is the negro of all history. When Assyria was in its glory he was a factor in its civilization, and lives to-day in its ruined temples. When Egypt was young, Africa was evidently old, and the Nubian of the nineteenth century is the Nubian of a period of which only the records in stone are left. We can recognize this coloring of races from the negro to the pure Caucasian, but we are left stranded on the shoals of inconclusive data, in bays to which no rivers lead, in results which, however closely followed, are traceable to no absolute cause. If climate produced in uncounted ages a negro, it should in similar periods undo its work under more favorable circumstances. The records of observation are too limited to solve this problem. So difficult is it to reconcile facts with the theory of evolution, that men like Agassiz have not been able to accept it, but have clung—perhaps unreasonably—to the old and equally difficult theory of distinct creations. While admitting the force of the argument that no perceptible change has occurred in history, written or unwritten, in the color of man as regard races, we do know that the color deepens by exposure to the tropical suns; and this, through successive action of generations, ought to produce a result as intense as that of the negro. There should be some evidence of value in this respect found in the Spanish races that have peopled the tropical regions of this continent, but, unfortunately, they are of too mixed a character to be worth anything as a basis for inductive reasoning.

Without entering into this line of argument further, it is very clear that the surroundings to which animals and men have been subjected have had much, if not all, to do with the various productions

that we witness. Probably no instance on as large a class in modern times has occurred as the changes that have taken place in our own country. The time is short—barely more than two centuries—and yet the American type is as fixed and as marked as any of the older races of the world. It is said, and with truth, that we are a mixed race; but, making due allowance for this, there is a certain undefined and undefinable appearance that marks our race, as it marks all races. The American form is as distinct from the German stock, from which it in the main sprung, as it is possible to imagine. Who can fail to observe the square shoulders and broad hips of the Teuton and not draw comparisons favorable to the sloping shoulders and graceful lines of the form of the American-born? These are marked distinctions and strike the eye at once. They demonstrate what I regard as a fact, that slowly, but surely, we are growing a type of men and women that in time will be a distinct race, grafted on old stocks, but molded by climate, food, natural associations and the law of harmonious development into a class—whether superior or inferior, at least widely different from all others.—[Trans. Odontological Society.]

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#### THERAPEUTICS.

DR. L. S. MARSH, ELIZABETH, N. J.

We are not careful and exact enough: we too often confound assertions with facts; mistake hypothesis for truth. When we have a theory that rests on very slight foundation, we should be careful to keep in mind it is but a theory, and not assert it as a truth. I don't wish to be understood that it is not our duty to inquire into uncertain things; far from that. I consider that those who officiate, in however humble a capacity, as the pioneers of knowledge have to hazard many conjectures before they arrive at the truth; many unknown paths must be investigated; many doors tried ere we enter.

Bacon says: "If experience is not directed by theory, it is blind." This brings me to the two systems of medical treatment—the empirical, and the true or rational school. The first, by accident or experience, we find certain medicine useful in the treatment of certain disorders; henceforth it is administered. Thus an empirical system is elaborated, requiring but a comparatively small degree of knowledge. On the other hand, for the proper perfection of medicine as a rational science, the observation of facts is indispensable as a beginning. Still we must not be content with taking them separately, but compare together a number of facts, and thus be able to draw conclusions. Our plans of treatment will then become rational, and we shall be better able, with the proper knowledge of the symptoms of disease, to meet each by its appropriate remedy. To become more skilful and effective in our profession as oral surgeons, and to do all man can do to alleviate the

suffering, two things are needed: a right understanding of the causes and symptoms of disease and a correct knowledge of the action of medicine.

Fifty years ago, chemical research and manufacture gave us fewer new medicines than now. The *Materia Medica* was a book composed of reiterated formularies, and their action was comparatively familiar. Now scarcely a week passes without some chemical discovery that may prove of great value to the science of medicine. Once Peruvian bark was a standard medicine; now the advance made in chemical analysis has extracted from it some six or eight different alkaloids, with analogous properties, but different crystallization, and somewhat similar in their medical properties. So with opium and many other articles that formerly entered in the healing art in their crude state.

In the medical profession they have vivisection to assist them in therapeutical discovery, by which means the proper medical dose and the fatal dose, and their mode of action in both cases, are accurately determined as a starting point for further inquiry. Next, the new medicine finds its way into the hospital, and if the result of its use is deemed encouraging, the drug, having passed the experiment in the physiological laboratory and the hospital, finds its way into general practice. We, however, as dentists, to obtain the knowledge of the action of remedies, specially in outward application, must, to a large extent, experiment on the human subject. Consequently, we are often in the dark as to the operation of a remedy; and, not knowing its particular action, we judge by its effects.

Too many of us, I fear, know but little of the exact action of the remedies we use; with the knowledge of the effect we rest satisfied. In painful and inflammatory conditions of the oral region, we almost universally use a preparation of aconite and iodine, which in such cases is as much our sheet-anchor as cinchona and its various alkaloids are in febrile cases in the medical profession. But, though knowing it to be almost a specific, how many of us could give an intelligent answer to the question of our patients, as to its mode of action? In this enlightened age it will not be safe to presume too much on the ignorance of our patients. They are beginning to look on us as educated men. Let us not deceive them, for they expect and deserve something more from us than mere theory.

Let none feel dissatisfied with using remedies empirically. Investigation, and a desire to know the manner in which remedies act, should more generally prevail. Then, instead of our present indecision and uncertainty on many points, we shall be prepared for the conflict with oral disease, being skilled in that science whose name bespeaks its peculiar importance—the science of therapeutics.—[New Jersey Transactions.]

## TEMPORARY TEETH.

E. J. LILLY, M.D., D.D.S.

Several days ago a father brought to our office his seven-year-old son, suffering from a badly diseased temporary tooth. The father was one of those fussy, fidgety men, always making some remark, but never saying the right thing at the right time. The child was almost scared to death, and when he discovered he was at "the dentist's," seemed to about to collapse. He had been systematically deceived in regard to the cruelty and "horridness" of a dental operation, and was consequently wrought up to a pitch of fear and dread, that ought to have put the father to shame. We tolerated the man's talk for a few minutes, then told him very pleasantly, but firmly, that we would take the boy into another room, and ascertain what could be done for him. After securing his confidence by asking a few questions, and telling him a short story, we examined his tooth and told him what was necessary to be done in order to relieve him. He was then ready to have his tooth treated. This was accomplished without any more ado, much to the surprise and gratification of the father. We then explained, as well as our limited time allowed, the benefits of early consulting a dentist, and he promised not to be so negligent in the future.

In dealing with children, the dentist must be kind and considerate, but firm, and have a strict regard for the truth. We must remember they will be our future patients. Untruthful statements, rough manipulation, and a severe demeanor, leave the impression on the mind that the "horrid dentist" is a person to be avoided. If we do not make it as pleasant as possible for them when young, in after life they will apply to us only as the last resort.

We presume most dentists have found that operating for children is difficult and tedious, and often requires great patience and self-sacrifice. But after gaining their confidence, and by gentle manipulation, the operation can be successfully performed. But it must be remembered in operating that the pulps of these teeth are relatively large, and come near the surface. The work, nevertheless, should be thorough, as their texture renders imperfect fillings almost valueless.

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In general, the deciduous teeth have received attention only when the sufferings of the child have rendered palliative treatment necessary, preventive treatment being comparatively a rare procedure. Cleanliness is as essential here as with the second set. The first step should be to teach the use of the brush, and, when necessary, the removal of the stain or deposit which often adheres with tenacity to the enamel. The use of the brush should be taught as soon as the child has sufficient intelligence to learn it; and previous to that

time, this duty should be done for him. They should be brushed three times a day with a soft brush, on which has been placed a little soap and powder, brushing up, down and across.

These small teeth accomplish admirably the purpose for which they were designed, and it is our duty when called on for advice to expend the energy, exercise the patience, and tolerate the annoyances necessary to keep them in good condition till they give place to the more permanent denture. There is a common belief among parents that the "first teeth" are unworthy of any attention except that given by the forceps. But they have a useful purpose to subserve, and are really indispensable to the health of the child. Besides, they bear such intimate relations to the permanent teeth as to render their preservation of vital importance.

The temporary differ from adult teeth in size, form and density, and require to be carefully dealt with till the child is old enough to do without them. Between the fourth and ninth year is the period demanding the most attention, the child at this time being sufficiently manageable. A pleasing story, or a talk about their plays or pastimes will most always gain their good-will, and this is half the battle. Parents must be advised to have their children's teeth examined at intervals, and the importance of this should be impressed on their minds. It is not enough to urge and persuade them to do this; we must, rather, make clear to their understandings the reason why one thing is right and another wrong. Mothers, specially, have a great tenderness for their offspring; for this reason it is easy to find an excuse for neglect. That they should be anxious about them at this time is perfectly natural; but that the solicitude should be carried so far as to deprive the child of our care is not wise. If parents would feel the weight of responsibility under which they are placed, and act on it, their children would reap the benefits of greater care and attention than many of them receive. If they were made to understand how much pain and discomfort could be prevented and spared their little ones, for whom they would sacrifice anything, the long and wakeful nights they are sometimes compelled to pass, the money to be expended in regulating and filling, and the many other troubles that might be avoided by timely care and attention, we are sure they would thoroughly wake to their duty. Decayed, aching and dead teeth are, oftener than many imagine, the prime cause of weak eyes, ear-troubles, and headache; they may even cause deafness, blindness and other ills. Then let us endeavor to impress the important truth that prevention is better than cure.—*Ohio State Journal.*

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*The man who is entitled to the least, grumbles the most because he has not more.*

## CAUSES OF FAILURE IN DENTAL OPERATIONS.

DR. F. H. MCINTOSH, BLOOMINGTON, ILL.

[Read before the Central Illinois Dental Society.]

I shall speak of a few of the causes of failure, as they seem to me, in dental operations. One of the greatest is the using of gold nearly to the exclusion of any other material. A lady came to me with an inferior wisdom-tooth which had lost its filling. It had been filled with amalgam under protest by one of the best gold workers in this State—he had advised that it was hardly worth filling with gold, and recommended extraction, rather than fill it with amalgam. He filled it with amalgam, therefore, under protest. There was plenty of room for the tooth, and no reason why it should not be retained as a useful organ, but for the reason gold could not be used, it was to be yielded up to the forceps. To have taken out that tooth would have been more of a failure than to have filled it under the gum with gold and shortly have had to repair it. Yes, ten times more. A dentist has no more right to follow on in a certain line of practice and use just what his “departure” calls for, than a physician to ignore any remedy outside his “pathy” that will subserve his patient’s good. To satisfy this patient, this operator placed in the amalgam—it came out in a year or little longer. To make a success, one’s heart must be in whatever he does, and this operator’s was not, for I know him to take much pride in the fact he is not an amalgam worker; he did not prepare the cavity, or fill it with the same care he did others with gold, in the same mouth, that did excellent service. I am glad I replaced an amalgam plug with care. I believe it was the best for the case; and the thanks I received at the setting, and the satisfaction the patient has expressed since, that her tooth is a useful, comfort-giving member, is more to me than was said of him who worked many weary hours in different parts of the mouth with the gold. I am not discussing gold, but referring to an operator who uses this material where gutta percha or amalgam should be; these will save teeth when gold can not. In connection with the use of gold and amalgam, thermal changes are to be considered. The discomfort which rises from metal being placed too near a pulp, need not be described. The patient has no peace, cold things at first give severe shocks and they, thinking “air is getting in under the filling” as they express it, return to see what is to be done. You say, bless your heart, I have had in fillings which have given me good service for ten years, and I cannot bear cold water on them; by warming them with the tongue or cheek, it soon passes away—give yourself no alarm, it will lessen and finally disappear in your case, I think. The patient goes out, and do you thoughtfully consider of what tempera-

ment she is? Did you recognize of what temperament she was when you did her work? Cold and hot things keep this patient miserable, and the result is, you have a devitalized tooth. This is a very important matter, this intermediate filling—but no one knows when to use it, without a knowledge of temperaments. We should know at a glance where to place our patients in the order of temperaments and the line of treatment to pursue, as well as to know what shape, size and color of artificial tooth to select, by the color of the hair and eyes, when a denture is to be constructed. You have been surprised many times when complaints have been made because of trouble from thermal changes, and have said: I do not understand why Mrs. W. should have trouble when Mrs. C. is perfectly comfortable with a tooth decayed far worse. You decide one is an irritable and not easily satisfied patient, when the whole trouble lies in your not recognizing one was of a nervo-lymphatic temperament, and the other nervo-sanguine, or, bilio-sanguine.\*

One thing more, be discreet in the selection of your filling material. Be as the physician who was asked if he was an aleopath, he said no. "You are a homeopath then." "No." "What are you?" "I'm doctor," he replied. So with us, not gold workers entirely, not any one thing, where our patients have all grades of teeth, and where we cannot discard any material to advantage. Fill with that material that will extend your beneficence to the greatest number of suffering human beings. This will be to your credit.—*Ohio State Journal*.

### HOW DENTISTS MAY MAKE THEIR FOIL COHESIVE.

J. SMITH DODGE.

The manufacturer having furnished the proper gold, the dentist should purify its surface. To be sure, one can buy cohesive foils ready for use, and many dentists are satisfied with them. But exposure to the air is sure to deposit moisture or whatever else on the surface, and a sufficient length of exposure will render any gold non-cohesive. Therefore, there is only one period at which the gold is equally cohesive, time after time, and that is just after it has been purified.† But if my gold is less cohesive to-day than it was yester-

\* We think temperament has nothing to do with this annoyance, neither is it generally from a too near proximity to the pulp of the tooth, but from a hypersensitiveness of the dentine. If, before filling, the cavity had been moistened with a little creasote, or still better, three grains sulphate atropia in half an ounce of water. With this after sensitiveness would have been avoided. Better by far, remove the filling from such a tooth, and do the work over.—Ed. ITEM.

† Years ago we also supposed this was true. As we used Watts' crystal gold which unites softness with cohesiveness, we bought only an eighth ounce at a time, and that direct from the manufacturer. Speaking to Mr. Watts, one day, on the inconvenience of doing so he replied: "You need not be afraid of its losing its cohesive quality under ordinary exposure. I have kept some in my safe for more than five years without it changing its qualities either for softness or cohesiveness." After that we bought by the ½ ounce; and though we used it in south Jersey, where the air is more humid than in many sections, we found the last of our purchase as good as the first. We think it would take some time for good, cohesive foil to lose its cohesive quality under ordinary exposure.

But if dentists prefer to anneal their own gold, Dr. Dodge's method described farther on, is much better than the ordinary way.—Ed. ITEMS.

day, it needs more force to make a solid filling, and so I must either vary my habits of working or send away fillings of different degrees of excellence. For these reasons I prefer to make ready my gold at no great time before it is used, and do not ask the manufacturer whether he is pleased to call it cohesive, or semi-cohesive, or non-cohesive. Let him make it pure and I will make it stick. It is a pity this has come to be called annealing. It resembles that process, to be sure, in its method, but the object is simply to cleanse the surface and not to make a molecular change in the metal. It is very usual to anneal the gold by passing each pellet or ribbon through the flame on its way to the cavity, but I believe this a faulty method. It cannot possibly secure a uniform degree of heat. It may easily melt thin edges into lumps, and it spoils the temper of the instruments used. My plan, which I have followed with success for over twenty years, is to anneal all my gold at once, immediately, or not long before using, on a pan of thin platinum, which is made as follows: a piece of platinum two and a half inches square and in thickness No. 34, is turned up an eighth of an inch all round. A platinum wire, No. 15, is split at one end like Y, and the angle soldered with gold to one corner of the pan, after which the wire is set tightly into a wooden handle, and the pan is complete. It is necessary to have as little thickness as possible at all parts of the pan, that it may heat easily. The gold (in pellets) is put into the pan and heated over a flame, and the right degree of heat is reached when the platinum becomes dull red. Of course it is not necessary to redden the whole pan at once, but all on which any gold lies should be in turn brought to this color. The gold is then turned out on a plate of glass, and is so cohesive that a single pellet held in the forceps will pick up all the rest, like filings hanging from a magnet. Of course the pellets have to be separated before using, which is a slight task, and when it is done I can begin with gold enough before me to make a two hours' filling, all in the highest state of cohesiveness.

The pellets which I use are Williams' cylinders, ranging from No.  $\frac{1}{4}$  to No. 2; but I attach no importance to the source of my gold, except that it be honestly pure and alway the same, nor to the form except that it be convenient.

With such gold so prepared, the practiced hand can make fillings which, in their proper place, far excel all other dental restorations.—*Independent Practitioner.*

#### EDITORIAL REMARK.

[To produce foil, gold is beaten between skins. The hammering so hardens the gold plates that as they spread out into foil they have to be frequently taken from the skins and, being placed between iron plates, subjected to considerable heat to keep them soft. Thus is produced our ordinary non-cohesive gold foil. If this is to be made cohesive, the foil after the final beating, is subjected to much greater heat.

By this process most manufacturers give us a brittle foil that when held up and shaken gives the sound of rattling tin, and, when used, has a harsh feeling under the instrument, and "does not work nicely." A few manufacturers have the ability of producing this cohesiveness by extra heat without losing the soft, velvety quality of the best non-cohesive gold, and such gold is eagerly sought, *and it can be had.*

The question comes, why should this extra heat produce cohesiveness? This is not so easily answered, but the more general answer is that it more completely burns out the glaze produced by such long and severe contact with the skins.—Ed. ITEMS.]

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### EXTRACTING TO REGULATE.

In the abnormality rising from the mixing of inharmonious types, as the small jaw of one parent with the large teeth of the other—resulting in a crowded condition—it is very doubtful if the arch can be made regular without the extraction of some of the teeth. It requires a judgment founded on long experience to decide always on the wisdom of extraction, and when such conviction is reached, one may be equally at a loss as to the choice of the teeth to be removed. It is a disputed point which of the teeth behind the cuspids can be easiest spared from the mouth. There are so many considerations to be taken into account it is hardly possible to lay down any rule of universal application. If the first molars are badly decayed, their removal would be indicated. If they were sound, and also the bicuspid, there might be no greater reason for their removal than either of the bicuspid. In fact, sound molars in the jaw are of more value as masticators than equally sound bicuspid.

As a rule, extraction of any teeth from a pinched or V-shaped jaw before it is widened, would be likely to prove bad practice. Certainly, the extraction of any teeth from the sides of the jaw in such cases for the purpose of correcting or improving the condition, without immediate subsequent steps being instituted to widen the arch, would be most unscientific and detrimental. Cases are not uncommon which show that a pair of any of the teeth in the mouth may be removed to correct an irregularity, excepting the cuspids of both jaws, and the superior central incisors. It would be an inconceivable case that would justify the extraction of the superior central incisors; but the upper lateral incisors, and any pair of the lower incisors, may be removed in certain cases without serious detriment to the appearance of the mouth.

The most frequent exhibition of irregularity in the lower jaw is confined to the incisors and cuspids. The cuspids are too prominent, and the incisors are crowded and lapping. Most of such cases cannot be corrected by enlarging the arch; the overlapping of the superior incisors forbids. The remedy is comparatively simple. The extrac-

tion of one of the centrals is indicated. This will give the required room, and enable the cuspids to be drawn in ; and at the same time the space made by extraction is closed. No matter what the mal-arrangement of the incisors may be, it is almost always better to extract one of the centrals to correct it. When the irregularity is corrected, the extracted tooth will never be missed.—NORMAN KINGSLEY.

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### CONTINUOUS GUM WORK.

DR. L. P. HASKELL, CHICAGO.

About thirty-three years ago Dr. John Allen, of New York, invented a method of inserting full sets of teeth, which then promised, and has since proved to be the most perfect method ever devised.

It involved him in an expensive law-suit with Dr. Hunter, who claimed priority of invention. Dr. Allen, after securing his claim, gave the full benefits to the profession.

It consists in covering a platinum plate with porcelain, an imitation of the natural gums and palate.

The platinum plate (which is the purest metal that can be worn in the mouth, but is used for this purpose because it is the only metal that will stand the heat to which the work is subjected in baking the porcelain) is swaged in dies and fitted to the mouth. The teeth are selected and arranged on the plate, and fastened to it by a lining of the same metal. The surface of the plate is then covered with the porcelain material, which is baked at a high heat. Finally the enamel is put on which, when baked, gives a perfect imitation of the gums and palate, to the minutest particular. This process, if carried through with care and artistic taste, produces a set of teeth which absolutely defies detection, and at the same time is the strongest and *most durable* work made, while it is the most *cleanly*, as there is no possible chance for the secretions of the mouth to lodge, which is true of no other work that is made. There are some mouths where it is absolutely impossible to obtain a natural appearance by any other means ; as, for instance, in all cases where the patient showed the natural gums as well as teeth ; the gums being very prominent, there is only room for the thinnest possible artificial gum, and it, too, should be *without seams*, which is only possible with this description of work, because it is continuous, and it is strong, however thin, because baked to the plate.

There are only two objections urged against this work, namely, *weight* and *expense*. As to the former, it is only necessary to say that the weight of a set of teeth is realized only when the set loosens from lack of suction or other cause ; otherwise it is of no account. I have had patients complain of the weight of rubber, the lightest of materials, and afterward wear continuous gum, with no complaint of weight.

As to the question of expense, this objection is often made by persons who, in other matters—dress, etc.—will have *only the best*, regardless of expense. Certainly there is nothing worn on the person of more consequence, as to personal appearance, than the set of artificial teeth. And when this is taken into account, together with the durability and cleanliness of the work, nothing but absolute inability to pay for it should deter any one from choosing it in preference to all other methods. Question arises sometimes as to whether it can be *repaired*. The dentist who makes this work can repair it as successfully as any other style of work.

Having used this method ever since its introduction, I can say that I have never been obliged to replace it with anything else in any case where I have used it. I have sets that have been worn thirty years, and still doing service.

#### IGNORANCE OF PHYSICIANS ON DENTAL SUBJECTS.

Dr. W. H. Trueman, says: "It is singular how much ignorance the majority of physicians have of dentistry. The indisposition many have to lancing the gums of a teething child is an instance in point. They contend that the operation is useless, yet dentists know how beneficial it is; how much relief it gives the little sufferer, and how much pain they escape by it. Many adults can testify to the wonderful relief they experience from lancing the gums during the eruption of wisdom teeth.

"Another point I would allude to—the frequency with which patients come to us with directions from their family physician as to what the dentist must do; oftentimes such directions being ridiculous, and making it appear the dentist was a "journeyman" working under the directions of the physician, instead of being, as he is, the master workman of the case in hand. These things are taken sometimes, but at other times such patients will be told what they deserve. Patients come with directions from the physician to have a certain tooth extracted, or the nerve of another killed, and feel much astonished, and sometimes aggrieved, if these directions are not carried out. Some patients will come to have a tooth extracted, and if, after an examination, the dentist sees that it can be saved and made serviceable and useful, and on these accounts refuses to extract it, they get angry. Some say, "the tooth is my own, and I have the right to have it extracted if I wish." Their arms or their hands are likewise their own, but would they, on this account, demand amputation of the surgeon? These persons forget that their lives are likewise their own, but they could not, on this account, demand that they be taken, or take them themselves."—*Office and Laboratory*.

THE DENTAL COLLEGES AND THEIR EXECUTIVE OFFICERS.

BALTIMORE COLLEGE OF DENTAL SURGERY: R. B. Winder, Dean, 140 Park Avenue, Baltimore, Md.

OHIO COLLEGE OF DENTAL SURGERY: H. A. Smith, Dean, 286 Race Street, Cincinnati, O.

PENNSYLVANIA COLLEGE OF DENTAL SURGERY: C. N. Peirce, Dean, 1415 Walnut Street, Philadelphia, Pa.

PHILADELPHIA DENTAL COLLEGE: J. E. Garretson, Dean, 1537 Chestnut Street, Philadelphia, Pa.

NEW YORK COLLEGE OF DENTISTRY: Frank Abbott, Dean, 22 W. Fortieth Street, New York, N. Y.

MISSOURI DENTAL COLLEGE: H. H. Mudd, Dean, 500 N. Jefferson Avenue, St. Louis, Mo.

BOSTON DENTAL COLLEGE: J. A. Follett, Dean, 219 Shawmut Avenue, Boston, Mass.

HARVARD UNIVERSITY, DENTAL DEPARTMENT: Thomas H. Chandler, Dean, Hotel Bristol, Boston, Mass.

DENTAL COLLEGE OF THE UNIVERSITY OF MICHIGAN: J. Taft, Dean, Ann Arbor, Mich.

WESTERN COLLEGE OF DENTAL SURGEONS: C. W. Spalding, Dean, 1525 Oliver Street, St. Louis, Mo.

UNIVERSITY OF PENNSYLVANIA, DENTAL DEPARTMENT: Jas. Truman, Secretary Dental Faculty, 1513 Walnut Street, Philadelphia, Pa.

DENTAL DEPARTMENT OF THE UNIVERSITY OF TENNESSEE: R. Russell, Dean, 53 N. Summer Street, Nashville, Tenn.

INDIANA DENTAL COLLEGE: Junius E. Cravens, Secretary, 46 East Ohio Street, Indianapolis, Ind.

DENTAL DEPARTMENT OF VANDERBILT UNIVERSITY: W. H. Morgan, Dean, Nashville, Tenn.

KANSAS CITY DENTAL COLLEGE: J. D. Patterson, Secretary of the faculty, 800 Main Street, Kansas City, Mo.

UNIVERSITY OF CALIFORNIA, DENTAL DEPARTMENT: S. W. Dennis, Dean, 530 Sutter Street, San Francisco, Cal.

DENTAL DEPARTMENT OF THE UNIVERSITY OF MARYLAND: F. J. S. Gorgas, Dean, 259 N. Eutaw Street, Baltimore, Md.

STATE UNIVERSITY OF IOWA, DENTAL DEPARTMENT: L. C. Ingersoll, Dean, Keokuk, Iowa.

CHICAGO COLLEGE OF DENTAL SURGERY: Truman W. Brophy, Secretary, 125 State Street, Chicago, Ill.

DENTAL DEPARTMENT OF MINNESOTA COLLEGE HOSPITAL: F. A. Dunsmoor, Dean, Minneapolis, Minn.

ROYAL COLLEGE OF DENTAL SURGEONS OF ONTARIO: J. Branston Willmott, Secretary, Mechanics' Institute, Toronto, Canada.—*Dental Cosmos*.

## IRREGULARITIES OF THE TEETH.

DR. NORMAN KINGSLEY, NEW YORK.

[Part of paper read before Dental Society of Scotland.]

An observer with limited experience may often be misled by the appearance of teeth as they first erupt. They may seem to be growing out of the line of the arch, and that a permanent irregularity is inevitable; but many such cases need no interference. If left to themselves, they will approach regularity, and often assume their true position, unless the occlusion of the antagonizing teeth prevents them. But interference is demanded as soon after eruption as it becomes certain a deformity is inevitable. There is then no longer justification for delay; for after that period every year increases the difficulties, both pathological and mechanical, and prejudices the stability of the change.

But all irregularities in the position of the teeth are not deformities which demand treatment; there are many departures from the normal type where neither the utility nor the beauty of these organs, nor the symmetry of surrounding features, is seriously affected by such malposition.

The regulation of teeth involves often the wearing of fixtures which cannot be removed and cleansed as frequently as the health of the mouth demands. Their continued presence may provoke caries of the teeth, and a prolonged treatment may seriously impair the nervous system; therefore, regulating teeth should not be undertaken without proper consideration. Such a consideration must recognize the age, sex and family type, and the relation of the features; the cause of displacement, the constitution of the teeth, and the ravages of decay; the efficiency of the teeth, the enunciation of the voice, the risk of inflammation, and the destruction of pulps; the systemic condition and endurance of the patient; the time required, and the annoyance to which he would be subjected; the means and appliances for correction; and, finally, the character and permanency of the changes wrought.

Regulating teeth may be undertaken under favorable circumstances at any age short of full maturity; but, all things considered, the most desirable period to begin the correction of much irregularity is when the cuspids and second molars are fully erupted. The occlusion of the teeth is an important factor in determining the permanency of the change. All attempts at correction at any age will be folly, unless the antagonizing teeth on occlusion will serve to hold them in their new positions.

Success in treatment is based on the fact that the teeth are placed on the maxillæ, surrounded by vascular, elastic, bony processes, which are easily moved or absorbed under pressure, and that reproduc-

tion of bone will follow such conditions, and make the teeth solid in their new locations. The possibilities under favorable conditions, within certain limits, are almost unbounded. Narrow jaws may be widened, protruding jaws made to recede, individual teeth moved considerable distances, and teeth elongated or shortened, or twisted in their sockets. The success of skilful efforts in this direction has been triumphant.

Some of the most marked cases have been made where the face has been deformed by a protruding or receding jaw, either upper or lower. Strictly speaking, when this occurs with the upper jaw, it is not the maxilla which is at fault, but rather the whole dental arch. Such a condition in the lower jaw is more likely to rise from a mal-articulation at the joint; but in either case, when taken at the proper age, they are quite amenable to treatment.

It is possible, in correcting deformities or irregularities of the dental arch, to create a deformity of the external features. It is not always advisable to attempt to change the form and expression of a mouth where the condition is an inherited peculiarity—being a part of the family type—and where the change would involve prolonged effort, possible breaking up of a good articulation, and with the knowledge that nature will be constantly making an effort to return to the inherited type. In hereditary cases of extensive character which have been delayed till at or near maturity, we can never feel certain but that the original tendency to mal-position, so long unbroken, will re-assert itself at any time we abandon retaining fixtures.

On general principles, it is desirable to retain every sound tooth in the mouth, yet there are many cases of crowded dentition where the removal of a tooth on each side of the jaw is justifiable. The retention of every tooth in the mouth is not necessary to the efficiency of the masticating apparatus, is not required to maintain the contour of the jaw, and the loss of certain teeth produces no visible external effect. Good articulation is of more importance than the full number of teeth.

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### COCAINE.

Editor ITEMS.—I first tried the two-per-cent. and though it did not relieve the pain in extracting entirely, it was a help. It was of no use in sensitive dentine. I am now using the four-per-cent. and find that in extracting teeth it works like a charm. The first case I used it on was for a lady who had been ill for some time, and came in with the left lateral incisor badly decayed and having an abscess at the apex of the root. I applied the cocaine by dipping a pledgit of cotton in the solution and laying it on the gums, over the root, allowing it to remain ten minutes. I then extracted the tooth, causing little pain, not enough, as the lady said, to complain of. A few days after

the same lady came in late in the evening to have the left superior bicuspid taken out. As it was late and I was ready to go home I forgot to apply the cocaine. It hurt so badly that she raised a general racket and wanted to know why I did not use "that stuff" I used on her other tooth.

I have taken out as many as five roots with only two applications of the cocaine. The last case in which I used it was for a young man. I applied the cocaine to a lower right bicuspid, badly decayed. Being afraid the tooth would crush, I waited seven minutes for the cocaine to have a good effect. He was not aware of the tooth coming out.

In applying the cocaine I loosen the gum round the tooth and dip a rope of cotton in the solution, wrapping it round the tooth and pressing it under the gums; then lay a pledgit of cotton, also saturated, on the gums over the roots, keeping out all moisture and giving it from seven to ten minutes for absorption. In using it for sensitive dentine, when excavating a cavity, I have not had the desired effect, though I have used it for that purpose only once.—MOLAR.

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*The treatment of irregularities* is almost entirely mechanical. To the anatomical, physiological and pathological knowledge required of the operator, there must be added a knowledge of mechanism and an ingenuity to apply it. Levers, pulleys, incline-planes, wedges and elastics, singly and in combination, are required for this purpose. It is quite impossible for one to overcome a complicated case of irregularity who has not a comprehension of each of these instrumentalities.

So far as pressure itself is concerned, it is immaterial from whence it is derived. The same weight, force, or power will produce the same result. It is only a matter of convenience what source shall be employed. For widening a narrowed arch, a jack-screw is the most effective means and can be used to spread one tooth only, or all the teeth on both sides, according as it is applied. Wedges driven between the teeth will enlarge the arch. Levers with elastics are used to twist teeth in their sockets, and an incline-plane can be made to move teeth laterally.

The application of such apparatus to the movement of teeth is one of the most responsible duties the dentist is called on to perform. Every one of these mechanical powers can be made to do his bidding, and equally each may become a formidable engine of disaster. When applied in the mouth, they should have constant watchfulness and care. Either of them in the hands of empirics would cause the destruction of those valuable organs they can be made to conserve in the hands of the intelligent practitioner.—NORMAN KINGSLEY.

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*Be what* you would have others be.

## FACTS.

DR. M. A. WEBB, MARENGO, ILL.

It is generally supposed that when a tooth, or its surroundings, give evidence of inflammation it will terminate in ulceration and suppuration.

From past experience, I think this is not so. Generally, even without treatment, after a few days, a change for the better takes place; and, with proper treatment, the tooth is almost sure to return to a normal condition, and be permanently saved.

I have had patients experience inflammation in a tooth till it had caused slight swelling of the face, which did not terminate in abscess.

We should impress our patients with the great value of their teeth, and refuse to extract where there is a chance of saving them.

My extracting for toothache does not average one tooth per day, and every day I save aching teeth.

Can we all say this? If we can not, it is time we were exerting ourselves to that end.

In regard to the treatment of exposed and aching pulps, I invariably prepare and fill (generally with plastic) all at one sitting. I am seldom obliged to extract afterward. Gold is not safe in these cases. The time is past when it can be considered the only filling worth using. It has a field entirely its own, but amalgam and other plastics have a field even broader, and therefore they are the greater blessings to humanity.

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Dear Doctor:—A few days ago, there came into my office a “Jewish” looking man, shabbily dressed, about fifty years of age. He offered me Lawrence’s and Welsh’s amalgam at half price, and said they were in original packages, and that he traded for them. I was too busy at the time to give him any attention, so did not get his address, but my impression is that he is a fraud; so I thought best to notify you of the matter. I never encourage such men, so, of course, did not buy.

Sincerely yours,

W. H. METCALF.

[There is a company out west who are deluging the country with a cheap amalgam which they put up in envelopes to suit customers. They call it “Welsh’s Gold and Platina Alloy”—both inside and outside envelopes being in imitation of ours in words, color of paper, and general appearance—or it is Lawrence’s in Lawrence’s envelope, or it is any other the dentist applied to may chance to prefer. The man you speak of is undoubtedly one of their “agents.” We are trying to bring the company and their emissaries to justice, but all know how difficult and expensive this is. It is almost impossible to do so without the assistance of the dentists who are imposed on, and this help it is difficult to get because few like to go to such trouble as this would be to them. But we will do our best.—Ed. ITEMS.]

## CREDIT TO WHOM CREDIT IS DUE.

After quoting the poem "The Dental Chair" in the February *Dental Register*, the editor says: "The above was clipped from some dental publication several years ago, which one we have now forgotten."

The poem was written by J. W. Hurn, and originally appeared in the *ITEMS OF INTEREST* of June, 1880.

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"To cure an abscess without a cicatrix," says Dr. Quintam in the *Medical and Surgical Reporter*, "use a silver wire passed through the abscess, before it has reached the skin, and retain it there. It acts as a drain, and has never failed in his hands."

What profound wisdom these physicians sometimes display! We once knew an old maid who had used one of these setons in the tear tube of the right eye for ten years. Was'nt that a "splendid" cure? The silver wire recommended by Dr. Quintam is of the same kind. Of course, it is very easy to pass "a silver wire through the abscess," and to retain it there! No; both are out of the question.

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*The natives of northern Siberia* have singularly healthy teeth. Old men of sixty or seventy have sets of teeth small and pearly-white, polished and healthy. Decay and suffering are unknown. A physician of Yakiotake, attributed this to their habits and the kind of food eaten by the natives, and to a certain care taken by them from childhood. First, the natives do not touch sugar in any form, for the simple reason that they cannot afford to buy it. Secondly, they are in the habit of drinking large quantities of fermented sour milk, summer and winter, which is antiscorbutic, and is very beneficial in preserving the teeth. And lastly, they have the habit of chewing a preparation of the rosin of the fir tree, a piece of which, tasting like tar, they masticate after each meal, in order to clean the teeth and gums of particles of food that may remain after eating. The gum, or rosin, is prepared and sold by all the apothecaries in Siberia, and is much used by Parisian ladies.—E. H. BUNTING, SR.

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*Consultation* is one privilege which ought not to be undervalued, and were we true to ourselves and our patients, we would oftener avail ourselves of it.

How many cases there are, in which an exchange of views would be advantageous.

Yet a consultation is not sought by the *young* dentist, because it will be considered a virtual confession of weakness, inefficiency, or lack of confidence, by the older practitioner, who may regard him with some

contempt in consequence. The more experienced dentist does not dream of asking a young man to see a case with him, as it implies that he himself is not infallible.

Is it not the duty of the older members of the profession to encourage the younger by their assistance, advice and patronage, and will not such a course pay in the end?

Not until we can grasp the idea that we have duties to others as well as to ourselves, will there be any hope of our being of much service in this "vale of tears."

By the very fact of coming to us, our patients lay us under obligations to honor their confidence by doing our *best* for them.—  
W. A. JOHNSTON.

### ETHICS AND PHYSICS IN A NUTSHELL.

W. H. METCALF, D.D.S., NEW HAVEN, CON.

Why separate religion from dentistry, if by so doing dentistry suffers?

*We do not refer to sectarian religion.* The word religion, meaning "to bind together," we use it in its literal sense, *viz.*: that quality of life (morality) which urges men to *live* and to *act* aright. A well-filled tooth is morally a success. If the *motive* of the filler was *good*, it has been *religiously* filled.

The *motive* and the *act* must be "bound together" to make truly good dentistry. In the study of character we always look *beyond* acts, for motives; when we find them well "bound together" and both good, we estimate the man as religious. Selfishness is bad motive. The quibbles and argumentations of sectarianism have had their day. Is it surprising that men, truly religious, avoid sectarianism, when there is little, if any, mention of it, in the Good Book? Probably the most noticeable evidence of the advance of civilization is the healthful independence or freedom of thought, on *all* subjects.

*Christians* are no longer *necessarily* *sectarian*.

Christ's life was not spent, in establishing a Sectarian church, on earth. His was truly a *Religious* life.

He "*bound together*," good motive and act.

As for *truth*: it is always revealing, *never* fully revealed.

Religion, thank Heaven, is no longer a matter of trammelled belief, a rolling in ruts. It simply means good-will, plus good-work.

Dentistry, every art and science, life itself, all mean *duty*, or good-will, plus good-work.

Again we ask, why separate them?

*Even Dakota* comes into line with her dental law; and a good one too.

## AN INCIDENT IN OFFICE PRACTICE.

Editor ITEMS.—Some weeks ago, while busily at work at the chair, a young man came into my waiting room—which was already occupied by several persons—and said in a voice loud enough to be heard on the street: “I’ve come to have you do some of your work over again; one of those fillings you put in the other day has come out.”

I gave the fellow a chair and bade him wait a few minutes, meanwhile thinking it would be pleasanter to show him the door.

On his taking the operating chair I proceeded to examine my record of fillings, asking him at the same time how many fillings I had inserted for him. He replied “five.” “Right,” said I. I then examined his teeth and found all five of the fillings in place and no cavity in any of the teeth. He still insisted that a filling had come out and that it was one that I had put in. “It came out while I was eating; I know it, for I bit on it.”

I re-examined the teeth with a like result as before; finally, I asked him what he was eating when it came out, thinking perhaps he had been eating game that had been killed by the hunter, and that a shot had remained in the meat. He replied that he was eating pie. “What kind of pie?” I asked, not knowing what else to say. “Peach,” said he. As it was not the season of the year for fresh fruit, I said, “Dried peach?” He said, “No; canned peaches, and the filling hurt me awfully when I bit on it. I know it is out, and I want you to put it back again.” I then asked how it felt when he bit on it, whether it crumbled, flattened out, or what. “Well,” said he, “it flattened a little. I’ve got it here,” taking it carefully out of his pocket-book. I took it, and at once saw it was nothing more nor less than a piece of solder from the peach-can that had dropped in when the can was being sealed. It had found its way into the pie and from thence to his mouth.

I showed him with a glass every filling I had put in, and still had hard work to convince him that I had not done him a poor job, and that it was not one of the fillings. When the matter was finally settled my other patients had all gone, and with the idea that I had done, in that case at least, poor work. As I had no means of correcting the impression, I had to let it go with no chance for redress.

The young man’s words on coming into the office did me an injury hard to estimate, while I had done nothing but kindness to him.

What are we to do in such cases?

A dentist’s reputation is a part of his stock in trade, and occurrences like the above are liable to reduce his capital.—W. C. BUNKER.

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*Furniture varnish* may be made by melting 2 ounces wax and 4 ounces turpentine. Care must be taken not to overheat for it easily catches on fire. First melt the wax and then stir in the turpentine.

**"DENTAL CARIES--A CRITICAL SUMMARY."**

HENRY SEWILL, M.R.C.S., L.D.S., ENG.

[A Review by F. Searle, D. D. S., Springfield, Mass.]

This book of sixty-six pages is remarkable for its style, its spirit, and, in the present state of dental science, for some of its teachings. It would hardly be worthy of special notice but for the circumstances which attend its publication. The papers which compose it were originally read before the Odontological Society of Great Britain, which includes in its membership, scholars, scientific investigators and authors. They were then published in a prominent dental journal, then republished in "permanent book form" for the benefit of students. Notices of the work in dental journals have generally been laudatory, and in England they seem to be accepted as correct teachings. No review of them has yet appeared which sufficiently exposes their fallacies. Written, as they claim to be, specially for the student, and in a pretentious and positive style, claiming to present fully and correctly the important facts and opinions of reliable investigators down to the present, it is possible that, without some word of protest, other than has been uttered, their erroneous teachings may mislead the student and do not a little harm.

The question under examination briefly stated is this: Is there living matter in enamel and dentine? And his answer is decidedly in the negative. The author's definition of caries is as follows:

"Caries is a process of disintegration due entirely to external agents. Enamel and dentine are entirely passive under the process and manifest neither pathological action nor vital reaction of any kind."

This definition stands opposed to the theories which admit that caries is directly due to external agents, but maintain that the tissues, dentine at least, are not passive, but manifest some kind of vital reaction. Those who maintain the theory that enamel and dentine contain living matter which can be irritated by external agents are contemptuously called "impressimists," relying not on facts nor on scientific observation, but on the "phantoms of a vivid imagination." Their writings are characterized as "incomprehensible rigmarole," comparable to the ravings of a party of bedlamites, a tale told by an idiot full of sound and fury, signifying nothing." The tone and spirit of the papers is fairly shown by the above quotation; nor is this all. "Recent writers" who believe in the vitality of all the tissues of the teeth are put on a false basis that their views may appear the more ridiculous. The spirit of candor and truth-seeking find little place; on the contrary, a specious effort to maintain what "I believe" and a disposition to throw contempt on those who accept other views is everywhere conspicuous. The earnest workers to whom opprobrious epithets are applied do wisely in paying these papers no attention; but for the sake

of the student for whom they are professedly written, it may be well to expose their fallacies.

As has been stated, the real question is this: Are enamel and dentine vital tissues? If they are not, the statement that they manifest no vital reaction of any kind is established without further proof. On the contrary, if they do contain living matter, it becomes evident from what is known of the behavior of living matter under irritation that it must manifest vital reaction of some kind. It may not be able to resist any more successfully than it does in soft tissues the overpowering attacks of chemical or vital forces from without. It does not possess the anatomical conditions for manifesting reaction when irritated as in other tissues. But, that it reacts in dentine under irritation is demonstrated by many evidences.

Perhaps the author's definition of the term "vital force" may as well be noticed here. He puts himself on record thus:

"The known forces of inorganic matter operating in organic bodies account for the phenomena of life, and therefore the theory of vital force becomes unnecessary. Physiology concerns itself no more with vital force than with witchcraft and the evil eye. These had their place in men's thoughts once on a time. Ghosts of this kind are no longer visible to those who stand in the illuminated atmosphere of modern thought. It is unnecessary to introduce vital force into physiology, still less into pathology."

Mr. C. S. Tomes, in defining "vital force," says: "There is not the smallest reason for supposing the ordinary laws of chemical and physical action are suspended in the body; on the contrary, the advance of science brings every day fresh evidence that the phenomena of development and nutrition are in strict accordance with these laws. But we are no nearer to the knowledge of the mystery of life. All we know is that the various chemical and physical actions *are set going and co-ordinated in a living body by an impulse of the nature of which we know nothing*," that is, the laws of chemical and physical reaction are not *suspended*, but their action is *set going and co-ordinated by an impulse* of the nature of which we know nothing." An admission of Mr. Tomes that he does not stand with Mr. Sewill "in the illuminated atmosphere of modern thought where the known forces of inorganic matter account for the phenomena of life without leaving a residuum."

But, explain "vital force" as we may, it remains a "force," an "impulse," as evidently as electricity is a force, and as well understood by what it does. After it leaves the organized body the laws of chemical and physical action present phenomena very different from those present when the actions are *co-ordinated by this "impulse."* No doubt the term, vital force, will continue in use and its meaning will not be misunderstood.

The author says: "The anatomy of enamel and dentine would

be alone enough to show that they are incapable of anything like pathological action." His anatomy is as follows:

"Enamel examined microscopically, is found to consist of solid prisms lying side by side intimately united and without any *intermediate substance*. Enamel is superimposed as a cap on dentine to which it is *closely united*. Not only is enamel not capable of intrinsic (internal) changes, it is not in relation with any mechanism capable of influencing it from within. Once formed it *is cut off absolutely* from all vascular connection. Dentine consists of a homogeneous calcareous matrix with a basis of fibrous tissue. It is permeated by minute tubes which are occupied by fibrils. These fibrils endow the tissue with sensibility. They form the only protoplasmic element in dentine.

"Dentine is formed by the calcification of the odontoblasts, the uncalcified center of each cell constituting the fibril. The vessels of the pulp do not ramify in immediate contact with the dentine, the odontoblasts intervening *cut off* the supply of nutritive material.

"The bearing of these anatomical and physiological considerations on my subject depends on the obvious fact that enamel *is totally devoid* of any physiological mechanism whereby either vital or pathological changes can be brought about in it, and that whatever changes the enamel undergoes are induced by external agencies. Not only is the enamel not capable of intrinsic changes, but it is not in relation with any mechanism capable of influencing it from within. To believe in the possibility of nutritive changes in enamel we must first conceive some means by which this calcareous mass *devoid of cellular elements and incapable of imbibition\** could assimilate nutritive material when brought to it, and must next imagine the conveyance of new and effete material to and from the vessels of the pulp through the odontoblast layer, by way of the dentinal fibrils to the enamel." On page three, "Dentine consists of a homogeneous, calcareous matrix in which no trace of cellular or other structure can be detected."

These papers teach that enamel and dentine contain no living matter, have no physiology and therefore can have no pathology. They reach the height of absurdity when they state that vitalists *do not* dispute the correctness of the author's anatomy. To quote his own words: "In presence of *our knowledge* of the structure of the teeth, which *strangely they do not seem to dispute*, some recent writers and speakers have talked glibly of inflammation of enamel, of inflammation of dentine, of retrograde metamorphosis of the dental tissues, as predisposing causes of caries. Any one acquainted with the meaning of these terms must feel disposed to pass by such utterances with the ridicule which this gross and palpable absurdity richly deserves." "A man who can speak of inflammation of enamel and dentine, or of retrograde metamorphosis of these tissues must indeed believe that it is better to

\* Prof. Mayr has shown that enamel contains not less than 6 per cent of imbibed water.

rely not on facts, but rather on the phantoms of a vivid imagination." The author's love of the ridiculous and his own vivid imagination have here run away from facts and led him into a statement for which he ought not to plead ignorance. The author is too intelligent a gentleman not to know that the views of dental anatomy and physiology entertained by vitalists are very different from those in which he himself believes. To make men hold to the absolute non-vitality of tissues and at the same time represent them as believing that nutritive and pathological changes take place in these tissues is too ridiculous save for "an elaborate joke." Clinical evidences alone were sufficient to establish in many minds the conviction that enamel and dentine are living tissues, *i. e.*, that they contain living matter in direct communication with the nerves of the pulp, even before any anatomical structure had been discovered to explain the clinical phenomena.—*Archives of Dentistry*.

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### MEDICATED WAFERS.

A. H. BEST, M. D., L. D. S.

At the meeting of the Georgia State Dental Society, in May, 1884, I submitted to the consideration of those present, what I then termed the "medicated wafers," for the treatment of pericementitis, neuralgia, or ulcerative inflammation, arising from periosteal or pulp inflammation of teeth. I also stated that I had found them valuable in relieving the soreness consequent on wedging, and in all cases where the fatigue of the parts from lengthy operations, together with the irritation of polishing fillings, etc., had left a sensation so nearly akin to actual pain, as to render some treatment, either real or apparent, an absolute necessity with nervous patients, and extremely desirable even for the minority not included under that head.

The want of some such kind of treatment first became manifest to my mind in 1882 and 1883, when I was particularly annoyed by the excitability of some of my patients. They generally found me occupied at the chair when they called; ignored, or did not comprehend, my repeated assurance that the soreness complained of was merely the result of wedging, filing, or polishing, and that it would pass off in a day or two; and persistently urged that something be done; so that I found it necessary to employ some means of affording mental satisfaction, at least till nature could repair the breach. I therefore directed a neighboring druggist to prepare for me a few pads of blotting-paper saturated with tincture of capsicum, extract of ginger, morphia, oil of mustard and menthol; the tincture being first evaporated down to half volume on a water-bath, and the other constituents then added.

The blotting-paper was prepared by simply dipping it in the solution, allowing it to dry, and dipping it once more, till it was considered

well charged. When the paper had sufficiently dried after the last dipping, one side of it was coated with two or three coats of shellac varnish; it was then cut into squares—the “wafers”—and was ready for use.

For convenience, the wafers were put up in small paper-boxes of a dozen each. Patients complaining of soreness, whether incidental or consequent on an operation, were given a box, with instructions to place a wafer over the seat of pain, with the dark side next the cheek—and permit it to remain two hours, renewing the application if necessary till relieved. One or two, usually, had the desired effect.

These wafers are so easily made, so universal in their applicability, and above all, so effective, as a local stimulant and anodyne, to say nothing of the mental effect produced, that they become valuable.

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#### A NEW “WRINKLE” IN POLISHING RUBBER PLATES.

Editor ITEMS—For the benefit of those who labor and perspire over a lathe, with a brush-wheel, cotton buff and rotten-stone, to produce a fine finish on a rubber plate, I would like to give my method of doing it. It will save time and labor, and is as follows:

After the usual filing, scraping and sand-papering comes, of course, the felt, buff, and pulverized pumice stone. Then, instead of a brush-wheel and the usual method, I wash and wipe dry the plate; take it in the left-hand with the concave side up, put on three or four drops of oil—not more—then about a teaspoonful of dry plaster, and with the thumb of the right-hand rub it over the plate quite briskly and in one minute’s time produce a polish that can’t be equalled with the lathe.

Polish above the gums the same way, using the forefinger, full length, instead of thumb. Wash the plate with soap and water, then use a little alcohol to remove any remaining grease.

If you try it once you will like it, as it can be done in the time it would take to get ready for the old way.—W. C. BUNKER.

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NEW YORK, April 11th, 1885.

T. B. WELCH, D. D. S.—Editor ITEMS OF INTEREST:

I notice in your last ITEMS OF INTEREST an article by Dr. Woodward in which he continues his dispute with Dr. Meyer, and again claims the merit for devising the appliance used in the case indicated.

Having been with Dr. Meyer during all the time the appliance was being made, and familiar with it from its beginning to its completion, I know that Dr. Meyer gave a great deal of time and study to it, and that its successful issue was due entirely to him. I never heard of Dr. Woodward making any suggestion in relation to the case, and his connection with it was limited to asking whether anything had been

done, and urging Dr. Meyer to do something as the patient was very anxious about it. Furthermore, if you will read his reports of the case you will notice that he had forgotten or never knew that it was necessary to resort to some adventitious means to retain the plate firmly in place, as he makes no mention of it, while Dr. Meyer both states the fact and gives credit for the means suggested where it belongs.

Yours respectfully,

J. H. HILLYER, M. D.

*The names of germs* in the germ theory, according to Prof. Hugh Engel, of the Chirurgical College of Philadelphia, are as follows:

Most of the schizomyceti have a rod-like shape, and have received the generic term, bacteria. But all bacteria are not so formed. According to their morphological peculiarities they are sub-divided as follows:

1. Micrococci or Cocci, characterized by their circular shape.
2. Bacilli, including all rod-shaped bacteria, whether short or long.
3. Bacteria proper, including, according to scientists, only the very shortest bacilli.
4. Vibriones, also rods, but of wavy shape.
5. Spirilli, forming short, stiff screws; and,
6. Spirochaeti, which appear as long flexible screws."

*Worms from the Head.*—A singular affair, if true, comes to our ears. A lady of town has for some time felt strange pains in her head, and remarked one day to her husband that she believed there was some live thing in her head. Recently a sack fell from the roof of her mouth into her hand, which contained two worms. A physician was consulted, and remarked he had heard of such a case, but had never met one before, and advised the extraction of back teeth, for there were more there.—*Wellsville Union*.

[This, we suppose, is the germ theory developed into the actuality of worms. And what an intelligent physician! How much more satisfactory it would be to hear the report of an intelligent dentist in such a case.—Ed ITEMS.]

*Digesting what we Read.*—Macaulay says: "Rumford, it is said, proposed to the Elector of Bavaria a scheme for feeding his soldiers at a much cheaper rate than formerly. His plan was simply to compel them to masticate their food thoroughly. A small quantity, thus eaten, would, according to that famous projector, afford more sustenance than a large meal hastily devoured." So it is with the mind; it will be found more nutritious to digest a page than to devour a volume.

## *Editorial.*

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### WHAT WOULD MARY SAY?

FOR THE BOYS.

When a young man I had a sweet-heart by the name of Mary. It was my first love affair, and it roused within me every noble faculty. I dressed nicer, kept cleaner, behaved better and was more refined in thought and spirit. I was changed from a thoughtless boy to an inspired young man. This is no more than love does for most young boys—and girls, too; but what I was going to say particularly was, that besides all this, I found myself continually measuring my conduct by what I thought Mary would probably like. A young lady's standard of morals and etiquette is higher than that of boys. When tempted to be coarse or vulgar in my speech or conduct, I would almost instinctively turn around to see if Mary was not looking at me; and as I considered the company I was in I would mentally ask myself how Mary would look in that company. So I gradually chose the company of the most refined, intellectual and moral, and trimmed my habits and directed my ambitions to a higher scale. I was induced to smoke a part of a cinnamon cigar once, and go into a saloon where the rest of the company drank beer, on the plea that I could drink lemonade. But the moral atmosphere of that company, and specially of that place, was so revolting that it became a life lesson to me. "How would Mary look smoking a cigar?" I said to myself, as I puffed away at it that I might look as big as any of them; and I threw it away in disgust. As I looked about in that miserable saloon for the first time, I instinctively asked myself "How would Mary look here?" How glad I am I had a pure-minded, high-toned, refined-spirited Mary. Of course, good parents and exemplary brothers and sisters had much to do with it, as had an education from my earliest days which taught me the wrong of these things; but it was the talismanic influence of my Mary that was the special, immediate power, elevating, ennobling and purifying my nature, making me studious, ambitious and industrious.

But why should this be? Why should our girls be better than our boys?—our young ladies be better than our young gentlemen?—our women better than our men? We certainly would not bring the "fair-sex" down to our level, and see them say and do things disgraceful in us. Let us, then bring, ourselves up to their moral plane, leaving our beer and our tobacco to those who care for nothing better, and abstaining from rough, vulgar language, which, with beer, and tobacco abound more and more in the path toward crime and destruction.

*Think for Yourself.*—A reader asks: "Do you think Dr. —'s theory of decay correct? I believe I have seen what contradicts it in your writings. If you do not believe his theory consistent with facts, why do you admit it to the pages of the ITEMS?"

Of course, we do not control the judgments of our writers. Men will differ in opinions, and it is well they should be able to present and defend them in our public journals. The only intelligent way for our readers is to deliberate carefully on what they read. While they should lay aside prejudices, often accompanying preconceived opinions, and follow carefully the reasonings of one differing from them, or presenting new views, they must not accept them without proof that seems to them sufficient.

That writers present views differing from mine is not a sufficient reason for their being untrue. They may be right and I wrong. It will not do for any of us to be very dogmatic; we are all too short-sighted. We do not attempt to present food for our readers prepared for swallowing without mastication. Use your teeth on all we give you. It is the only way for you to grow and to keep intellectually healthy. Then again, don't take it for granted that all we give you is even worth chewing. We don't like hash; and we presume our readers prefer having what we give them presented in such a way they can select for themselves what they think digestable.

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*Death From Having a Tooth Extracted.*—William Cowgill, a well-known citizen of Spencer township, O., died on Saturday morning at his residence, of blood poisoning. Several days before, he had a tooth extracted. This was followed by severe inflammation in the jaw, resulting in blood poisoning.

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*A Dental Law for Minnesota* has just been passed. It is so similar to those passed in other States, its quotation in this journal in detail is unnecessary.

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*The Pennsylvania State College* at Center county, Pennsylvania, is no doubt a model institution of learning. It was originally an Agricultural College, but its rich grant of land so copiously endowed it that it has so enlarged its facilities as to be a University in its various educational courses. Yet it keeps prominent its original feature to prepare farmers' sons with a good practical education, and specially those features pertaining to agriculture and kindred sciences and employments.

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*Onions* may be peeled without unpleasantness to the eyes and nose by holding them under water during the operation.

## Miscellaneous.

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### HUMAN VISION.

Persons speak of their eyes being fatigued, meaning thereby that the seeing portion of the brain is fatigued, but in that, says Dr. W. W. Seely, they are mistaken. So men say their brains are tired. Brains seldom become tired. The retina of the eye, which is a part of the brain and an offshoot from it, hardly ever is tired. The fatigue is in the inner and outer muscles attached to the eye and in the muscle of accommodation. The eyeball, resting in a bed of fat, has attached to it six muscles for turning it in any desired direction, and the muscle attached to the side nearest the nose and one at the outer angle of the eye should, in every normal eye, be balanced. They are used in converging the eye on the object to be viewed, and the inner muscles are used the more when the object is the nearer. The muscle of accommodation is one which surrounds the lens of the eye. When gazing at objects near at hand, this muscle relaxes and allows the lens to thicken, increasing its refractive power at the same time the muscles on the inner or nasal side of the eye contract and direct the eyes to the point gazed at. It is in these muscles the fatigue is felt, and one finds relief in closing the eyes or in gazing at objects at a distance. The chief source of fatigue is the lack of balance in the two sets of inner and outer muscles of accommodation. There is something wrong when the eye becomes fatigued. The defective eye, as it gives out sooner, is really safer from severe strains. The usual indication of strain is a redness of the rim of the eyelid, betokening a congested state of the inner surface, accompanied with some pain. When it is shown that the eye is not equal to the work required of it, the proper remedy is not rest, for that is fatal to its strength, but the use of glasses of sufficient power to render necessary so much effort in accommodating the eye to vision. It is not good sense to waste time in resting the eye, and that practice does not strengthen it.

Eyes begin to age at about the tenth or twelfth year of life, when they have reached their full development. At the age of forty-five or fifty years the lenses cease to thicken, when the pressure is removed and their presbyopia, or old sight, begins. When a child is compelled to use glasses, there is little reason to hope that it will outgrow the need. Dr. Seely, however, mentions one case he had observed where a child had outgrown the need of glasses, but in the meantime he had grown from a small and puny child to a large and well-developed man.

Second sight, or the apparent recovery of strength of vision, which is sometimes seen in the aged, is an elongation in the shape of the eyeball, by which the person becomes near-sighted.—*Scientific American*.

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*Gold writing ink.* Gold 24 leaves, bronze gold  $\frac{1}{2}$  ounce, spirit of wine 30 drops, best honey 30 grains, gum arabic 4 drachms, rain water 4 ounces. Rub the gold with the honey and gum, and having mixed it with the water, add the spirits.—*Scientific American*.

## MOLECULAR MAGNITUDES.

L. R. CURTISS.

In entering on an analysis of atomic and molecular magnitudes, it is desirable that we should have as clear an idea of the immeasurably small in Nature as possible. To the astronomer the size and relative distances of the celestial bodies are real magnitudes, and so also, to the molecular physicist, the magnitudes verging on the infinitely small are just as much of a reality. The billionth of an inch is just as much of a fact as a billion miles.

The mathematical definition of a point consists in stating it as a locality without length, breadth, or thickness; but we receive no very concise idea of the definition till we proceed graphically, and make a dot, which shall possess limited dimensions of length and breadth; then, by the metaphysical process of abstraction, we dispense with the linear dimensions, and thus purify our conceptions concerning physical magnitudes, and place ourselves in the way of realizing the real existence of the invisibly small in Nature.

In the animal kingdom are found myriads of forms so minute that it would take a million to occupy a cubic inch, yet each is endowed with organs of sense or assimilation sufficient to serve the purpose in its sphere of life; and if the whole body of one of these minute entities is only the millionth part of an inch, what size shall we give to one of its various internal organs? The vegetable kingdom, also, offers abundant specimens of microscopic forms, calculated to excite our admiration by the beauty and minuteness of their organisms. Such is notably the case in several forms of *Diatomaceæ*. The striated markings of *Pleurosigma fasciola* aggregate 64,000 to the inch, while *Amphipleura pellucida* often exhibit striæ exceeding 100,000 to the inch. Yet the skeletons of these minute organisms are composed mainly of siliceous matter, the siliceous matter again being made of silicon and oxygen. Notwithstanding the almost infinitesimal minuteness of the organic world, human skill is able to compete in the matter of minuteness. Platinum wire has been drawn so fine as to rival in minuteness the smallest fiber of the spider's web. Gold has been deposited on the surface of other metals, and drawn to such extreme thinness that a thousand-millionth part of a grain exhibited the visible characteristics of the metal. The oscillations of the horizontal pendulum can be measured to the 1-80000000 part of an inch, by the aid of a small mirror, a beam of light, and a graduated scale for reading the vibrations. Nobert, with a mechanical skill unsurpassed, has repeatedly ruled with a diamond-point on glass the nineteenth band of his test-plate, consisting of lines less than the 1-112000 of an inch apart, and it is claimed that he has succeeded in ruling plates covering 224,000 lines per inch, such as would aggregate in superficial areas to over 50,000,000 to the square inch! Such minute divisions are wholly beyond the resolving power of the most elaborate of modern microscopic appliances; for it has been shown by Sorby that the ultimate power of the microscope for distinct definition is limited to the examination of magnitudes not less than one-half of the average wave-length of the luminous spectrum; and it is shown, on the authority of Helmholtz, that when the amplitude of the object is less than this half wave-length—or somewhat in excess of 80,000 to the inch—the dark interference-fringes impair the definition of the instrument, except in the case of striated markings, which may be clearly

defined, or resolved, by so arranging the illumination as to mask the fringes, and bring out a good definition even in excess of 100,000 to the inch. Hence, the main difficulty attending the possible amplification of objects less than about the 1-100000 of an inch in diameter is a purely physical one, and depends on the constitution of light itself.

The various phenomena of chemical physics teach us that matter is not homogeneous, but is made of infinitesimal particles or atoms, the term *atom* meaning *invisible particle*; and that the term *molecule*—meaning literally a *little mass*—refers to an aggregation of two or more atoms. Thus, a crystal of common salt may be pulverized till one of its fragments is barely discernible to the highest range of microscopic power, and still this fragment will retain all the characteristics of salt. This same microscopic portion is susceptible of a further subdivision by solution in water, when the spectroscope will detect its presence in the still minuter quantity of the one-hundred-millionth part of a grain. Here in the case of salt, physical analysis ends, and aside from chemical analysis, any further sub-division must be by the process of abstraction, till by its means we arrive at the mental conception of a portion so minute as to consist of an atom of sodium united by the bonds of chemical affinity to an atom of chlorine. This is now a molecule of common salt. Any further division destroys the entity of the compound, and results in the decomposition of the salt into the atoms of its elements. Hence a simple molecule is the smallest portion of any chemical compound that is not susceptible of subdivision without destroying its entity or, in other words, the smallest number of atoms that can cohere to form a compound constituting the molecule of that compound. An atom is designated as the ultimate particle of any elementary body, and is not susceptible of any further division within the range of human analysis.

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#### UNCONSIDERED FACTS IN DENTAL JOURNALS.

A. LAYMAN.

It is a noticable feature that though dental journals do not pretend to afford amusement to either professionals or laymen they nevertheless do treat of teeth in a jawious manner. Is it not possible that in the future they may let us know about the tooth of time?—Why it always eats forward, why it will not eat backward, and how it may be turned? We have heard of the “skin” of the teeth ever since Job escaped with it, but no one has ever told us how to get it off without disturbing the hair on them, or how we can tan it after it is off. What did Job do with it, after he escaped with it? Laymen would like to know about the dentistry of the harrow and horse rake. How shall we fill their teeth? What kind of manure will cause the greatest increase of filling? We all like toothsome food but don’t always get it. Why not? If it is not toothsome is it because it has no teeth? Can we have false teeth made for poor food that has to gum it? How interesting is the dentistry of the fine-tooth comb. Why do mothers, when they use it on the heads of their boys, try to fill the teeth and when they do succeed, take it out and put it between their thumb nails? The remark “this is too thin” is often heard. What does it mean? Who is toothin? Answers to these questions will make dental literature interesting to a large number of readers, and people of different callings.

## THE BRAIN AND THE MIND.

JAMES R. NICHOLS.

Experiments show how remarkably the mind is under the control of its material environment, as when the matter of the brain is put into abnormal conditions it no longer holds control but remains dormant. The mind, which is uninfluenced in other parts of the body by cold, goes on with its work, the acts of respiration are performed regularly, the heart continues its functions, the blood courses through the veins and arteries as usual. All these acts, which are termed semi-voluntary and involuntary, are performed when the brain mass is frozen.

The deduction might be drawn from these experiments that heat is the source of mind, or indeed is mind, inasmuch as when it is present in the brain its functions are active, when it is withdrawn they are dormant. This conclusion would necessitate the belief that mind is co-related with the energies known as heat, electricity and light, and give color to the views of a class of philosophers who regard mind as a form of energy no more exalted than other forces in nature.

Significant of the erroneous nature of such views is the fact that impressions made on the brain, before heat is withdrawn, remain and, with the restoration of heat, are continued, showing that the mind principle is still present although heat is absent from the brain. The mind, the living principle, is not destroyed, but is so far influenced by abnormal physical conditions that its activities are suspended. It is certain that mind is capable of remaining in a passive or inactive state distinct from the conditions of sleep for long periods of time, how long we do not now. It is believed by some that mind impressions are physical realities, stamped, as it were, on brain matter when the matter on which it is set is in motion; everything we remember is thus imprinted on the brain, on infinite points of brain substance, each independent and free. This view makes the brain a physical microcosm, a world within mirroring the world without.

It is indeed not difficult to conceive of such possibilities, inasmuch as we know what science has accomplished in the field of microphotography. There are before me a dozen or more pieces of glass; I examine one with the closest scrutiny. Nothing but a minute speck is seen on the clean surface, but I slide the glass under the lenses of the microscope, and what a revelation! There is spread out before the eye a full page of that great journal, the *London Times*, every line and letter distinct and clear. Long editorials can be read with ease by the aid of the lenses; but remove the slide, and the unaided eye fails to find any spot which cannot be covered with the sharp point of a needle. On such infinitesimal spaces of matter on glass surfaces are recorded the Lord's Prayer, the ten commandments and other pages of printed matter.

If on brain surfaces all the memories of a life-time are photographed, it is conceivable how space may be found for such a record; but this purely physical view does not commend itself to the intelligent reason. Mind must be a distinct principle, wholly unlike the material brain through which it acts; and when it leaves its hiding place in the physical structure it carries away all there is of man worth preserving—his moral nature. Eight or nine ounces of nervous tissue, held in suspension in forty or more ounces of pure water, do not constitute the mind or soul of man.

The gray substance of the brain is unquestionably highly organized material, but it is only matter, and, when out of control of mind, obeys the laws under which all matter must act.

### WHITELAW REID IN BRONZE.

EXECUTED BY DR. N. W. KINGSLEY, OF NEW YORK.

"Saturday night" at the Lotos Club was made exceptionally enjoyable last evening by a remarkably fine exhibition of paintings, by the presence of the distinguished actor Herr Sonnenthal and by the presentation of an admirable work of art, the product of one of the members of the club. It has been known for some time in artistic circles that Dr. N. W. Kingsley, an eminent dentist of New York and a member of the Lotos, is gifted with much more than ordinary ability as a sculptor, and when a short time ago it was announced that he had completed a bronze bust of the President of the club, Whitelaw Reid, his fellow-members became curious. Last night it was unveiled and formally presented to and accepted by the club. Col. Thomas W. Knox made the presentation speech, and Vice-President Frederick R. Lawrence formally accepted the bronze. The artistic merits of the work was, however, much too obvious to the club members to allow them to consent to anything short of the appearance of the sculptor. Amid much applause Dr. Kingsley made a bow and subsequently a very neat little speech. He confessed that he began the task of modelling the features of Mr. Whitelaw Reid in clay last October. His idea at the time was, he said, to "make the bust of a Minister to England." Later on he modified his intention and concluded to animate his clay to the form of a United States Senator. But then, on reflection, he concluded that there were many Senators and only one President of the Lotos Club, so he decided to make a bust of "that official."

During this little speech of the sculptor the friends of Mr. Reid who were present maintained an ominous silence, which was quite embarrassing to the speaker. He had intended a jest, but it was not enthusiastically received. The original of the bust was not present but arrived at the club later in the evening.

There was but one opinion expressed concerning Dr. Kingsley's work. It was acknowledged on all sides to be masterly. The likeness to the original has been perfectly caught, but without any sacrifice of freedom of treatment. All critics—and the Lotos Club is by no means destitute of critics—united in praising the work.

*A very strong mucilage for binding books and papers* is made of four parts by weight of glue, allowed to soften in fifteen parts of cold water for some hours, and then moderately heated until the solution becomes quite clear; sixty-five parts boiling water are now added while stirring. In another vessel thirty parts starch paste are stirred up with twenty of cold water, so that a thin, milky fluid is obtained without lumps. Into this the boiling glue solution is poured, with constant stirring, and the whole is kept at the boiling temperature. After cooling, ten drops carbolic acid are added to the paste to prevent souring.—*Scientific American*.

## THE WEALTH FROM INVENTIONS.

Senator Platt, in his vigorous speech in Congress last winter, in support of our patent laws, claimed that two-thirds of the aggregate wealth of the United States is produced by patented inventions. Two-thirds of the \$43,000,000,000, which represents the aggregate wealth of the United States, rests solely on the inventions, past and present, of this country.

Mulhall, in his "Progress of the World," writes that in effect the invention of machinery has given mankind an accession of power beyond calculation. The United States, for example, make a million sewing machines yearly, which can do as much work as formerly required 12,000,000 women working by hand. A single shoe factory in Massachusetts turns out as many pairs of boots as 30,000 bootmakers in Paris.—*Scientific American*.

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*Change of Climate*—Of the effect of the minute change in the aspect of the earth to the sun to modify the climate of the various latitudes there can be no doubt. The depression or elevation of portions of the earth; at different times must have modified climate also. Some think the open sea north of Greenland a myth, but there was a time probably when Greenland itself had a warmer climate. In a recent lecture Dr. P. H. Carpenter, of Eton College, mentioned the case of Greenland as an illustration of the manner in which the earth's history is read from fossils, those remains of by-gone life which in the middle ages were regarded as "sports of nature." Fossils of four climates, all warmer than the present icy one, are found in that country. Remains of the oak and the maple tell us that the climate was once very similar to that of England to-day, and the coal, found lower down, shows that something approaching tropical heat prevailed at an earlier period. The fossils of certain sea creatures appear on the land, showing that Greenland once lay beneath the sea and that its water was temperate, while the coral, obtained still lower down, must have grown when the waters were still warmer.

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*For Shampooing*.—A teaspoonful of powdered borax in a quart of water forms a safe shampooing liquid; but still better is the yolk of an egg, worked thoroughly into the hair, applying a little at a time, and then washed out. The egg will leave the hair surprisingly clean, and the scalp soft and free from dandruff.

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*Preparing Wax for Base Plates*—Dr. C. Thomas, of Tioga, Pa., writes us :

"The following is my method of preparing wax for base plates. I melt the wax and pour it into tin pans about one-fourth of an inch in thickness and take it out when cold and put into warm water until quite soft, and use a clothes' wringer and reduce it gradually until it is as thin as I wish to have it, which method I find is far superior to using a rolling pin."

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*For headache*, caused by overdoing and indigestion, try salicylate of sodium.